



Use of Longitudinal Research in
the Evaluation of the Scottish
Government's National
Outcomes

**USE OF LONGITUDINAL RESEARCH IN THE
EVALUATION OF THE SCOTTISH GOVERNMENT'S
NATIONAL OUTCOMES**

**John Bynner, Longview and Paul Bradshaw, Scotcen,
with the help of Clare Sharp and Louise Marryat, Scotcen**

Scottish Government Social Research
2008

Further copies of this report can be obtained from:

Scottish Government Social Research
4th Floor West Rear
St Andrew's House
Regent Road
EDINBURGH
EH1 3DG
Tel: 0131 244 7560
Fax: 0131 244 5393

Email: socialresearch@scotland.gsi.gov.uk
Website: www.scotland.gov.uk/socialresearch

The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

© Crown Copyright 2008

Limited extracts from the text may be produced provided the source is acknowledged. For more extensive reproduction, please write to the Chief Researcher at Office of Chief Researcher,
4th Floor West Rear, St Andrew's House, Edinburgh EH1 3DG

CONTENTS

EXECUTIVE SUMMARY	1
CHAPTER 1 BACKGROUND TO THE SCOPING STUDY	10
(a) Range of the study	10
(b) Sources of Evidence	12
(i) Government Officials and External Experts	13
(ii) Expert group	13
(c) Government purpose, strategic objectives and performance outcomes	14
(d) Methodological considerations	18
(e) Analytic approach	21
CHAPTER 2 LONGITUDINAL RESEARCH RESOURCES	22
(a) Resources Reviewed	22
(b) Scottish Sample Sizes	27
(c) Matching the studies against the performance outcomes	28
CHAPTER 3 POLICY SCENARIOS AND VIGNETTES	33
A ECONOMY	36
B EDUCATION	44
C HEALTH	55
D PROTECTION	60
E COMMUNITY AND PUBLIC SERVICES	67
F ENVIRONMENT	78
G INEQUALITY	86
H IDENTITY	91
CHAPTER 4 CROSS-CUTTING ISSUES	94
(a) Priorities for longitudinal resource support	94
(i) Scottish longitudinal studies	95
(ii) UK wide longitudinal studies	97
(iii) Specialist studies	99
(iv) New studies	100
(b) Longitudinal resource strategy	100
(i) Raising awareness	100
(ii) Integrated approach	102
(iii) Administrative data linkage	102
(iv) Local factors	103
(v) Comparative analysis	104
(c) Capacity and capability	105
CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS	106
(a) Investment	106
(b) Strategy	108
(c) Capacity	109
APPENDIX 1 TABLE A1 EXPERTS CONSULTED	111
APPENDIX 2 NATIONAL PERFORMANCE OUTCOMES UNABBREVIATED	112
APPENDIX 3 SUMMARIES OF STUDIES ANALYSED BY NATIONAL OUTCOMES	113

EXECUTIVE SUMMARY

Chapter 1 Background to the scoping study

1. This scoping study was commissioned by the Scottish Government (SG) to assist in the development of an evidence base through longitudinal research, and to support evaluation of the Government's performance framework. The focus was mainly on longitudinal studies involving the follow-up of individuals over time rather than cross-sectional surveys used for monitoring performance in the population at national level, or at the level of institutions such as businesses or hospitals; though these have a role in multi-level frameworks for analysis that link National Outcomes to local goals and service delivery. In the course of the study administrative data sources emerged as highly important and were also reviewed.

2. The study was directed at:

- a) Understanding the policy context in which the evaluation of research resources will add value
- b) Reviewing the design features and coverage of the different longitudinal research resources available in terms of relevance to the Scottish Government's National Performance Framework focusing on the 15 National Outcomes by which the effectiveness of the framework will be judged
- c) Demonstrating the ways in which different longitudinal resources might be used singly or in combination to evaluate the strategic outcomes and weighing their relative value
- d) Identifying gaps in the longitudinal resource portfolio that need to be filled by enhancing particular studies or supporting new ones
- e) Identifying cross-cutting issues that need to be resolved in relation to the development of the portfolio and its most effective use

3. The study drew on evidence collected from three main sources:

- a) Documentation relating to the key studies identified as most directly relevant to the scoping study's requirements
- b) Senior officials in the SG Analytical Services division, including directors of analytical services in the different policy domains relating to the economy, education, health, criminal justice, community, environment – to elicit their experience of, and views about, the use of longitudinal research in their own sphere of interest and the need for new studies
- c) An 'Expert Group' of university users of Scottish longitudinal data to advise on the evidence base, conceptual framework and analytic approach for the scoping study and to comment on the draft report

4. The SG's strategic purpose with seven associated targets is to "to focus Government and public services on creating a more successful country with opportunities for all of Scotland to flourish through increasing sustainable economic growth". The first stage of the work was to clarify the content and operationalisation of the performance framework through which the purpose will be realised at the various levels at which it operates. These are cast in terms of the "Virginia State

Model” of service delivery, which focuses on measurement of progress towards agreed goals, rather than specific targets to be achieved. Heading the framework are the five strategic objectives: *wealthier and fairer, smarter, healthier, safer and stronger, greener*, followed by 15 outcomes for assessing progress towards meeting the objectives and 45 indicators for detailed performance monitoring. The study focused on the 15 National Outcomes addressing the question of how longitudinal research might assist in their evaluation. Building on previous reviews of Scottish survey data sources, the 29 longitudinal studies and administrative data sources judged most relevant were reviewed (summaries are in the Appendix to the main report).

5. The studies reviewed varied in design including:

- birth cohort studies following up large samples from birth to adulthood with data collection often at extended intervals
- household panel studies with annual repeated measurement of all household members over the age of 16
- age cohorts starting at different stages of life such as adolescence or old age
- area studies following samples based in a particular locality

In reviewing the studies attention focused on their main design features including coverage, repeated measurement and sample size (for UK wide studies – the size of the Scottish sample) and methodological considerations, including the impact of data loss through sample attrition on study viability, data quality and bias.

Chapter 2 Longitudinal Research Resources

6. Six types of longitudinal data sources were identified for detailed examination of which four turned out to be the most immediately relevant to the scoping study.

- a) **Scottish national longitudinal studies** - designed and implemented exclusively in Scotland to address specifically Scottish issues and contexts alongside the more general demographic information needed to cross classify them, *Growing up in Scotland* (GUS), *Scottish Longitudinal Survey* (SLS), *Scottish School Leavers Study* (SSLS – being replaced), *Scottish Survey of Achievement* (SSA)
- b) **Area based studies located in Scotland** - on topics for which findings could be reasonably generalised to the rest of the Scottish population: *Edinburgh Study of Youth Transitions and Crime* (ESYTC); *GoWell Glasgow Study of Community Health and Well-being* (GWG); *West of Scotland* (WoS 11-16 and WoS 20-07 Studies); *Scottish Housing and Regeneration Project* (SHARP)
- c) **UK wide longitudinal studies** - containing sufficient numbers for analysis in Scotland, including those with a Scottish boost, to ensure adequate numbers for robust analysis: *British Household Panel Survey* (BHPS)/*UK Household Longitudinal Survey* (UKHLS); *Millennium Cohort Study* (MCS), *National Child Development Study* (NCDS -1958 birth cohort), *1970 Cohort Study* (BCS70 -1970 birth cohort); *Labour Force Survey* (LFS); *Workplace Employee Relations Panel Survey* (WERS)

- d) **Administrative data sources** - for linkage to the longitudinal surveys: *Annual Survey of Hours and Earnings (ASHEPD)*; *Interdepartmental Business Register (IDBR)*; *Scottish Continuous Recording System (SCORE)*; *Work and Pensions Longitudinal Study (WPLS)*

The other sources were surveys carried out in England without a Scottish sample but of relevance for Scottish policy objectives and possibly for guiding the development of analogous Scottish surveys, e.g. *English Longitudinal Study of Ageing (ELSA)*; *Longitudinal Study of Young People in England (LSYPE)* and overseas and comparative studies, e.g. *Study of Health and Retirement in Europe (SHARE)*.

Chapter 3 Research Scenarios and Vignettes

7. To illustrate the kinds of research scenarios in which longitudinal data had a part to play in the evaluation of the National Outcomes, short vignettes were constructed linking relevant variables at the different levels - individual and community - at which they were measured. In constructing the vignettes, one for each outcome, we first identified the implicit proposition that lay behind each of them, e.g. investment in education will raise skills levels; smoking constitutes a risk to health. The next step was to identify the longitudinal data that would best support explanatory models linking circumstances, experiences and personal attributes to the given outcome at the appropriate level - sometimes within a single multilevel framework.

8. For convenience the outcomes were grouped in terms of the broad policy domains to which they refer – *economy, education and life long learning, health* (one outcome); *protection (including criminal justice), community and public services, and environment*. The exceptions are those that span most of the others, *inequalities and identity*, which are discussed separately at the end. Alongside the vignettes examples are given of longitudinal research projects to illustrate the kinds of investigations that longitudinal surveys support.

(a) Economy

9. This spans two features of localities, as well as the national picture: an attractive place in which to do business and the supply and take-up of employment opportunities. The former is measured by business start-up, growth and profitability, and the latter by the employment record of individuals in the population at large. Together they merit a multilevel data survey design structure defined by locality with employees embedded in the businesses located there and the wider social infrastructure that supports them. Relevant data sources are administrative, including IDBR, WERS, ASHE and WPLS, and from survey sources of which the UK-wide LFS and WERS, with longitudinal components, are the most important for adult employees. The research scenario would be secondary analysis of data sets linked across all sources or, in the longer term, a longitudinal study of business development and employment in a number of contrasting localities. A key issue to resolve is how to cover first entry into the labour market, where the proposed replacement for the SLS will be the obvious data source.

(b) Education and Lifelong Learning

10. Education is the area in which longitudinal data comes into its own because of the relative ease with which individuals can be followed through primary and secondary school and later into post compulsory education and the labour market. Three outcomes are embraced; skills as reflected in: general and vocational qualifications; basic and core skills, capabilities and engagement, including entry into the labour market and its counterpart the '*More Chances, More Choices*' group; cognitive and behavioural skills acquired in the early years. The research scenarios can operate at the level of individuals through modelling the formative influences on educational progress, or within a multilevel framework, with particular emphasis on school and other education system effects. The components of the 'learning careers' involved include family circumstances and parental involvement followed by school experience and achievement.

11. The main longitudinal survey sources are plentiful and include the UK-wide longitudinal cohort studies, NCDS, BCS70, MCS and GUS and the panel surveys, BHPS/UKLHS. Linkage to existing administrative sources and the use of the under-exploited SSA, based on an annual survey of pupil attainment, needs to be explored. However it should be noted that the focus and remit of the SSA is being revised in order to reflect the aims and requirements of the Curriculum for Excellence. The precise form that the SSA will take is therefore still developing. A planned resource comprising individual data on transition from school to the labour market, based on careers guidance data, will be valuable for tapping the special features of the Scottish post 16 education system, which the UK-wide surveys do not cover in the detail required.

(c) Health

12. Health is another area where longitudinal data research has much value in contributing to the understanding of 'cause' and 'effect' especially when the effect is a health outcome, such as smoking related for example, to the incidence of disease – lung cancer. Relevant measures of the outcome are of two kinds. The first is identified with morbidity and mortality, which is encompassed by the SLS with great scope for additional administrative data linkage through national records. The second relates to psychological and physical well being and lifestyle including the health related behaviours such as smoking, drinking and diet. The key data sources are the birth cohort studies - NCDS, BCS70 - originating in perinatal mortality and child health concerns and in the longer term, MCS, and GUS. The most comprehensive evidence base, however, is to be found in the area-based West of Scotland Studies (WoS), funded by the Medical Research Council.

13. As previously, the research scenarios follow the approach of modelling the effects of different influences on health related behaviours, such as smoking and drinking, different disease outcomes and healthy old age. In the case of WoS, analysis can take into account features of the local community in a multilevel framework. The major issue to resolve is whether to establish the Scottish Longitudinal study of Ageing in parallel to the comparable English study ELSA.

(d) Protection

14. The emphasis here is on children and families at risk and the defeat of crime through the criminal justice system. Outcome measures relate, at the individual level, to recorded and self-reported crime and exposure to crime, and at the area level, to crime rates. Key studies are the birth cohorts and the UKHLS, which will include data on experience of, and committal, of crime. In the longer term GUS and MCS, offer much potentially for investigation of the outcomes for children and families at risk. The most relevant current study is however, the one specifically targeting crime and young people, ESYTC, which has six waves of data collected across the period 12-18 and is now moving into the adult period of life (although without funding). This dataset has very rich information about all aspects of youth transitions and crime linked comprehensively to administrative data about crime in Edinburgh and offers much scope for secondary analysis targeting this outcome. Other area-based datasets such as WoS and GWG also contain relevant data for analysing the conditions and experiences that precipitate crime and desistance to crime.

15. Research scenarios focus on first identifying the risk factors that predict later negative outcomes at school and in the community with a view to discovering what can reverse them and secondly, modelling the neighbourhood and family characteristics that predict exposure to crime and the shaping of criminal careers.

(e) Community and Public Services

16. The emphasis in the outcomes here is on sustainability, resilience and high quality services principally at community level. Measures relate to quality of community life, in relation to such features as housing and neighbourhood, participation in the community and use of services. The best longitudinal data on community comes from the various area studies such as GWG, WoS and ESYTC. All contain much information, including linked administrative data, about the different facets of community life including use of services and the role of disadvantage at individual and community level. These studies offer rich resources for research. They also bring in the topic of housing, which does not feature in the National Outcomes, but is clearly a critical aspect of effective functioning in all areas of community life.

17. What is lacking here is longitudinal research on rural communities and the best we have comes from the Scottish Longitudinal Study, which is limited in terms of its coverage. Again a multilevel modelling framework for analysing the way these different features relate to the outcome measures at the level of the individual (take responsibility) and the community (sustainability) appears the best approach.

(f) Environment

18. The outcomes here concern the impact of environment on quality of life and in return the impact of the consumption component on the global environment. Although the first is fairly straightforward to operationalise from existing longitudinal resources the second is more difficult. The built environment in the city context is well covered by the area studies such as GWG and WoS. The natural environment has to rely on administrative data and the SLS for longitudinal coverage. The annual Agricultural Census of Farms and the IDBR are relevant administrative sources,

which could supply sampling frames for more intensive longitudinal study. The Scottish Continuous Recording System (SCORE) that supplies a record of housing provided by registered social landlords is a useful source on the built environment. UK-wide studies such as BHPS, NCDS and BCS70 and GUS, and potentially UKLHS, all provide quite detailed information about housing circumstances and histories, but numbers are small for Scottish rural areas.

19. Again the case for a longitudinal study specifically targeting rural communities and incorporating the issue of inward and outward migration is a strong one.

20. Consumption patterns can be established from cohort study and household panel data to a limited extent and cross-sectional surveys such as the Family Resources survey, but their impact on the environment cannot easily be assessed. Research scenarios are thus heavily constrained in this case by the relative lack of good longitudinal data.

(g) Inequalities

21. Inequalities relate to all personal attributes encompassed by the fifteen outcomes especially the first four but also extending to the others in reflecting the variation between individuals in response to the strategic objective - 'wealthier' balanced by 'fairer'. Again the cohort and panel studies provide perhaps the best data sources for this outcome, because they can evaluate changes in the distribution of the given outcome and its structural correlates such as class and gender across time. GWG is an important example of a project that focuses on inequalities in different domains of life especially health and housing. Another potential source is the Department of Work and Pension's new Wealth and Assets Survey and the WPLS. Other studies focussing on particular sub populations in difficult circumstances will also come into the frame, such as the 'Life Opportunities Survey' (LOS) which will explore the "barriers disabled people experience" - as the study will also include non-disabled respondents the inequalities can be identified and monitored. In addition, the planned Longitudinal study of refugees (LSR) will be an important source.

22. Modelling of inequalities follows the same standard framework operating at the individual level this time. The question to address is whether the strength of relationship between different attributes such as earnings and structural factors such as social class, gender and ethnicity is increasing or decreasing over time in response to policy initiatives and what are the variables such as qualifications that can moderate it.

(h) Identity

23. A number of the studies reviewed contain some data related to the concept of national identity, but none explore it in enough detail to allow distinct longitudinal analysis of the outcome in its own right. Furthermore, as many of these studies are UK-wide, the questions often refer to 'British' rather than 'Scottish' identity as in the case of the most recent second British Election Panel Study (BEPS). To pursue the issue properly would require either a module devoted to identity in a study like the new UKHLS or investigation indirectly via activities such as voting.

Chapter 4 Cross Cutting Issues

24. In the course of the scoping study a number of cross-cutting issues arose that bear on the development of national strategy for longitudinal research resources in Scotland and the investment priorities to be attached to it.

(a) Longitudinal Studies Support

25. The main issue to resolve is the choice between continuing or terminating existing studies or expanding the portfolio with new studies. The evidence points to giving high priority to:

- continuing the key Scottish national studies – GUS, SLS and replacing SLS
- continuing to support the UK-wide longitudinal studies particularly those having a Scottish boost, which provide sufficient numbers for specialised Scottish analysis including first, the MCS and the BHPS/UKHLS, second, those without a Scottish boost but just sufficient numbers for analysis, NCDS and BCS70
- continuing support for the specialist area studies that operate effectively in Scotland WoS, GWG and ESYTC as holding potentially a key place in the portfolio.

All of these studies merit much more extensive exploitation for policy purposes.

26. Consideration should be given to establishing new studies of:

- ageing and health - the Scottish version of the English Longitudinal Study of Ageing (ELSA) – the need for which is currently being scoped
- businesses and employees in rural and urban environments in a multilevel area-based design
- life in rural areas extending to in- and out-migration
- youth transitions c.f. the 2004 (13-25) Longitudinal Study of young people in England

(b) Longitudinal Resource Strategy

(i) Longitudinal Awareness

27. Longitudinal research enables the relationship between input of services and delivery of outcomes to be better understood. The data sources that best support this goal are the specifically Scottish studies and the multi purpose GB and UK-wide longitudinal panel and cohort studies, especially where a boost sample has been applied. The longitudinal research resource, in which there has been much Scottish investment, is underused but has much value for the appraisal and development of the national performance framework. More could be done to promote more widely the use of the resources for policy purposes.

(ii) Administrative Data Linkage

28. All the studies reviewed will be greatly enhanced by linkage to administrative data especially the Scottish Longitudinal Study, which is thin on coverage but very

good on sample size (274,000). The key administrative data sources identified are SSA (in its current form)¹, ASHEPD, IDBR, DWP and SCORE. Their linkage is best achieved within a coordinated strategy to ensure that the right ethical and data protection safeguards are in place and involving all SG policy divisions and analytical services. The plan to establish a 'secure data lab', in the Scottish Government offices for the research use of such administrative data presents positive opportunities in this respect.

(iii) Local Factors

29. Longitudinal studies for Government purposes tend to be seen in national terms. We draw the conclusion, however, that certain area studies, focussing on particular policy domains such as crime, health and disadvantage, because of the multilevel depth of enquiry, offer much of value to policy development. This also links to one of the over-riding themes of the performance framework that national purposes and objectives are ultimately delivered locally through service provision. Understanding policy delivery on the ground, through exposure to it of sample members in longitudinal studies, is therefore a very important part of the research requirement. Area-based studies are particularly valuable in this respect and more of them could usefully be established. However the balance needs to be struck between what is a valid indicator for local evaluation purposes and what is needed for national evaluation to make valid comparisons across Scotland. Local studies also offer collaborative opportunities such as between the city of Glasgow and Glasgow University's Department of Urban studies in GWG. They can also support such tactics as phased introduction of new policies creating quasi-experimental opportunities for policy evaluation.

(iv) Comparative Analysis

30. The advantage of UK-wide longitudinal studies such as BHPS/UKLHS, the British Cohort Studies, MCS, NCDS and BCS70 and SLS is the opportunity they provide for comparative analysis between the different countries of the United Kingdom. There is therefore much value in investing in boosts, to enable separate Scottish analysis to be carried out within the comparative framework. There is a trade off between this approach and that involved in GUS, for example, which relates to, but is quite distinct from its nearest counterpart, MCS. In the wider comparative framework certain studies like the English Longitudinal Study of Ageing, are part of a cross-European collaborative project, the Study of Health and Retirement in Europe (SHARE), for which the Scottish version of ELSA (should any such study be taken forward) could also become eligible.

(v) Capacity and capability

31. The Office of the Chief Researcher has been prominent in developing research capacity across government and promoting knowledge transfer through joint PhD studentship programmes. However, competence in universities and parts of Government in the production and use of longitudinal data still has room for

¹ Although as previously noted, the SSA is currently being revised to support the introduction of the 'Curriculum for Excellence' (CfE). This is likely to involve significant changes.

improvement. Joint arrangements between local authorities and local universities on the GWG model are still rare and Scotland has yet to be awarded a node in the ESRC National Centre for Research Methods. Expansion of longitudinal research methods training must therefore be a priority.

Chapter 5 Conclusions and Recommendations

32. Longitudinal data has much to offer for policy development and evaluation in the areas of education, health and crime and potentially could offer more in the areas of economy, community and the environment. Consideration could usefully be given to developing the longitudinal resource base for policy purposes in four ways:

1. Coordinated strategy for the production and more effective use of longitudinal data in all domains of policy development and evaluation.
2. Coordinated strategy for integrating administrative data, linking to longitudinal survey research resources and formulating a comprehensive policy for research access and use.
3. Development of the performance framework in the light of longitudinal research insights and development of the longitudinal resource base to match better the performance framework's needs.
4. Enhanced capacity to match new longitudinal investment opportunities.

CHAPTER 1 BACKGROUND TO THE SCOPING STUDY

(a) Range of the study

1.1 This report describes the findings of a scoping study directed at informing the Scottish Government about the use of longitudinal research in the evaluation of the Government's national performance outcomes. The work builds on previous reviews undertaken by Longview for the Economic and Social Research Council² and a series of overviews of longitudinal research resources in Scotland, including one carried out for the Scottish Government by ScotCen in 2001.³

1.2 The report's primary concern is with the design and content of longitudinal research programmes, surveys and resources that bear on the National Performance Outcomes. It also highlights gaps in these resources where new studies are likely to be helpful. In furtherance of this aim the work focussed on six features of the research brief, which have been addressed in the order shown below:

- a) Understanding the policy context in which the evaluation of research resources will add value
- b) Comprehensive coverage of the different longitudinal research resources in terms of relevance to The Scottish Government's strategic plan
- c) Analysing the design features and coverage of the studies in the most effective way to enable their value to be understood by matching longitudinal resources to particular policy outcomes
- d) Demonstrating the ways in which different longitudinal resources may be used singly or in combination to evaluate the strategic outcomes and weighing their relative value
- e) Identifying gaps in the longitudinal resources portfolio that need to be filled by enhancing particular studies or supporting new ones
- f) Identifying cross-cutting issues that need to be addressed in relation to the development of the portfolio and ensuring its most effective use

1.3 This chapter sets out the main features of the study, including the Scottish government's performance framework to which the use of longitudinal data is directed. Chapter 2 following examines 29 longitudinal studies and data sources of potential value in the evaluation of the Scottish Government's National Outcomes. This is supported by Appendix 3, which supplies summaries of the studies grouped in terms of the National Outcomes to which they relate - as specified in the 2007 Spending Review. Chapter 3 contains the bulk of the text in setting out research scenarios in the form of vignettes relevant to each of the 16 National Outcomes

² Martin, J., Bynner, J., Goldstein, H., Katton, G., Boyle, P., Gayle, V., Piesse, A., Parsons, S., (2006) *Strategic Review of Panel and Cohort Studies*: Report to the Research Resources Board of the Economic and Social Research Council,

www.longviewuk.com/pages/publications; Bynner, J., Goldstein, H., Purdon, s., Maughan, B., Michael, R., Wadsworth, M., (2007), *Scientific case for a New Cohort Study*: Report to Economic and Social Research Council (to be released).

³ Hinds, K., Sproston, K. and Taylor, R. (2001) *Data sources for Social Research in Scotland: results from a scoping study on longitudinal research* (Hinds, Proston and Taylor, 2001); *Longitudinal Research and Analysis Network* (2007), Longitudinal Surveys in the UK, Office of Chief Researcher, Scottish Government, Mimeo.

grouped in accordance with 6 major policy areas. Chapter 4 considers investment priorities and cross-cutting issues that need to be resolved in developing national longitudinal research resources strategy for Scotland.

The report both supplies the findings of the scoping study while also serving as a resource for government and other users of longitudinal data working within the national performance framework. The National Outcome or Outcomes of interest can be tracked to the vignettes setting out the research scenarios to which they relate. Technical details of the relevant resources can then be pursued through the summaries in Appendix 3. The next step is a visit to the relevant website to examine the study's documentation. Frequencies and other descriptive data for relevant variables can then be appraised, if supplied, or run off direct from the data sets. An analysis programme can then be specified.

Longitudinal Research

1.4 Longitudinal research takes many forms so it is important to make clear what we have identified as particularly relevant to the purposes of the review. In the broadest sense longitudinal research involves the follow up of any set of entities in which changes can be observed over time. Entities may range from nation states through institutions such as hospitals, down to individuals in the population at large. Broadly our focus is on the last of these, i.e. individuals in defined populations either in this case the population of Scotland as a whole or sub-groups defined by location in the population, e.g. geographically or institutionally, to which the Scottish Government's National Outcomes relate. Thus although certain outcomes relating to the business context ('wealthier and fairer'), and the environment ('greener'), are directed more at the macro level, we have not reviewed the range of typically cross sectional surveys or studies of institutions, like schools, hospitals or businesses through which assessments of change for this purpose is achieved. This defines the remit as concerning a range of studies:

- birth cohort studies that follow up individuals from birth through to adult life
- age cohort studies that begin data collection at a particular stage in life, such as adolescence or old age, usually defined by chronological age
- household and family panel studies, where data on all eligible individuals (e.g. 16 or older) are collected within the unit of the household

1.5 Research using these data sources has a number of foci of which the most relevant for Scottish Government purposes are:

- predicting from observed data a given outcome at a given age in later life and testing the prediction through data collected later (e.g. "Born to Fail")
- explaining a given outcome in terms of what has been observed earlier (e.g. "Origins of adult obesity")

1.6 Where cohort studies and panel studies extend over a period of time through repeated cohort studies, then the effects of social and policy change (cohort effects) may also be observed through the changes in relationships between explanatory and outcome variables.

1.7 Such research needs to be distinguished from studies set up specifically to evaluate the effects of Government policy, where data collection is directed at sections of the population identified with exposure or not to a particular policy. Where policy implementation is universal and a control group is clearly not possible such evaluation is limited to monitoring changes in the population typically using administrative data sources. The report refers to this work, but more in relation to its potential in enhancing the coverage of longitudinal surveys rather than as a replacement for them. The ideal evaluation model is one which controls all extraneous variation with which the policy effect could be confounded achieved by randomising the allocation of individuals to treatment and control groups. But for ethical reasons such 'Randomised Control Trials' (RCT) are rarely applied in policy evaluation in the UK and are not considered further here.

1.8 In any event our focus is not so much on direct evaluation of this kind, than on modelling the patterns of relationships between variables to which policy refers more generally. When there is differential exposure to new policy intervention such as the banning of smoking in public places (e.g. the Scotland – England timetables of implementation), then something can be learned from longitudinal surveys of the populations involved about the policy's effectiveness and for whom it has worked.

1.9 The report also focuses more on research resources than attempting an exhaustive review of findings. This is again in aid of identifying the features of infrastructure for evidence building on which policy development can be effectively based. We review longitudinal resources identified as relevant to the review in some detail in the next chapter.

(b) Sources of Evidence

1.10 The work involved a detailed review of the content and supporting documentation of some 29 longitudinal surveys and administrative datasets, ranging from those that were exclusively designed for Scottish purposes and based in Scotland to other UK wide projects with much relevance to Scotland. The studies were initially identified from the previous overviews and supplemented through the interviews and the work of an 'expert group'. Each of the longitudinal resources were classified in terms of a number of dimensions of which the most important initially was the extent to which the focus of design and coverage was specifically Scotland, as opposed to, for example, the whole of the United Kingdom. The latter included the UK-wide longitudinal surveys where to ensure adequate data for Scottish analysis the samples had boosts to double or treble their naturally occurring size in Scotland as determined by probability sampling. Others had just sufficient numbers for analysis (generally approaching 1000 people currently participating) as they stood. Full details are supplied in the next chapter.

1.11 As the brief for the scoping study was focussed at the level of the National Outcomes, the task for the research team was to identify longitudinal research resources that could most effectively bear on their achievement. Most resources would have to be, of course, historical in the sense that the data they comprise had been collected in advance of the strategic outcomes being specified. However, this does not diminish their relevance as they supply the basis for modelling processes that are relatively constant over long periods. Where there are changes in the

relationships of the variables involved, earlier surveys in a time series of repeated longitudinal surveys supply the baselines against which the likely effects of new policies and delivery processes can be assessed. Other resources were current with new data collected or in the pipeline. A third category was that in which no longitudinal research resource was available to match the outcome, in which case the argument for new data collection had to be made.

1.12 To gain better understanding of the role these longitudinal research resources might play in the evaluation of SG's National Outcomes evidence was collected from two main sources

(i) Government Officials and External Experts

1.13 Interviews with senior analytic services personnel directing the use of data for Government purposes in different policy areas were arranged by the Chief Researcher's project liaison officer. External experts were contacted directly. Table A1 (Appendix) lists all the people interviewed. Against the background supplied by the 2006-2009, *Scottish Government Spending Review (2007)* which encompasses much of current Government thinking, interviews with officials were directed at:

- a. Gaining understanding of the Analytic Services role in the policy area
- b. Experience of and use made of longitudinal data – to identify those resources that were:
 - i. Most valuable
 - ii. Important but not so far picked up by the study
 - iii. On the way
- c. Perspectives on the value of longitudinal research in relation to the evaluation of the Government's National Outcomes
- d. Where in the policy domain new knowledge gained from longitudinal research was most needed
- e. Key stakeholders in longitudinal data

1.14 Interviews with external experts were directed at illuminating the design, coverage and future plans in key studies and the use of longitudinal data in particular specialist areas such as housing. They included the Chief Housing Officer (Policy Review and Development) Glasgow City Council, who is a leading expert on housing research in Scotland. Principal Investigators (PIs) of key studies were contacted to clarify features of design and coverage and to learn about future plans.

(ii) Expert group

1.15 Apart from evidence collected direct from individuals and from relevant documentation, we also established an expert group of leading Scottish academics with expertise and experience of longitudinal research and its use for Scottish Government purposes (see Appendix1). The group met early on in the project to help develop the parameters of the study and identify key individuals to talk to and relevant data sources not included in our initial specification. In the first meeting, many ideas were put forward which helped to shape the course of the review, especially in working out the kinds of cross-cutting analysis of data sources that were likely to be most fruitful. Additional longitudinal resources were also identified such

as the Annual Survey of Hours and Earnings Panel Data (ASHEPD), the Individual Business Register (IDBR) and the Department of Work and Pensions Longitudinal study (WPLS) based on DWP data. A second meeting was held in late March with four of the group to consider initial findings and some draft material for the main report. Most valuable inputs into the work were gained on both occasions and through follow-up correspondence. Finally a meeting was held by video link to discuss the draft report.

(c) Government purpose, strategic objectives and performance outcomes

1.16 The interviews with policy analytic services personnel proved particularly helpful in enhancing our understanding of how the government's 'strategic purpose' is to be realised through the five strategic objectives and the 15 National Outcomes. We needed to find out how this aim was being worked out in each policy area and at each level from national government via local government down to the local community. The evaluation framework and the standards by which its effectiveness is to be judged has been strongly influenced by the 'Virginia model' of local service delivery base based on the joining up of services. An important feature of the model is that outcomes are not framed in terms of output targets, which have to be achieved to prove success, but define goals towards which local administrations can work to bring about improvement in specified directions.

1.17 Thus the Government's National Outcomes can be viewed as part of a hierarchy of goals and aspirations, varying in their degree of specificity and consequently utility in relation to policy evaluation. At the top of the hierarchy is the Government's *purpose* "to focus Government and public services on creating a more successful country with opportunities for all of Scotland to flourish through increasing sustainable economic growth". The purpose is elaborated through seven economic targets that set out, as specific benchmarks, the achievements to which policy is directed: economic growth, productivity, participation, population, solidarity, cohesion. The key to their realisation is evidence of performance improving, being maintained or worsening e.g.:

- economic growth comprises achievement of the UK level by 2011;
- productivity is for Scotland to rank in the top quartile for productivity against OECD trading partners by 2017;
- participation is to maintain the position in labour market participation as the top performing country in the UK and to close the gap with the top 5 OECD economies by 2017;
- population is to match European population growth over the period from 2007 to 2017 supported by increased healthy life expectancy;
- solidarity is to increase overall income and the proportion of income earned by the three lowest income decile groups as a group by 2017;
- cohesion is to narrow the gap in participation between Scotland's best performing regions by 2017;
- sustainability is to reduce carbon emissions over the period to 2011 by 80%.

1.18 The five strategic objectives head the plan for realising the purpose and targets providing the supporting policy strands through which the purpose will be achieved and comprise:

- **Wealthier and fairer** – Enable businesses and people to increase their wealth and more people to share fairly in that wealth.
- **Healthier** – Help people to sustain and improve their health, especially in disadvantaged communities, ensuring better, local and faster access to health care.
- **Safer and stronger** – Help local communities to flourish, becoming stronger, safer place to live, offering improved opportunities and a better quality of life.
- **Smarter** – Expand opportunities for Scots to succeed from nurture through to life long learning ensuring higher and more widely shared achievements.
- **Greener** – Improve Scotland’s natural and built environment and the sustainable use and enjoyment of it.

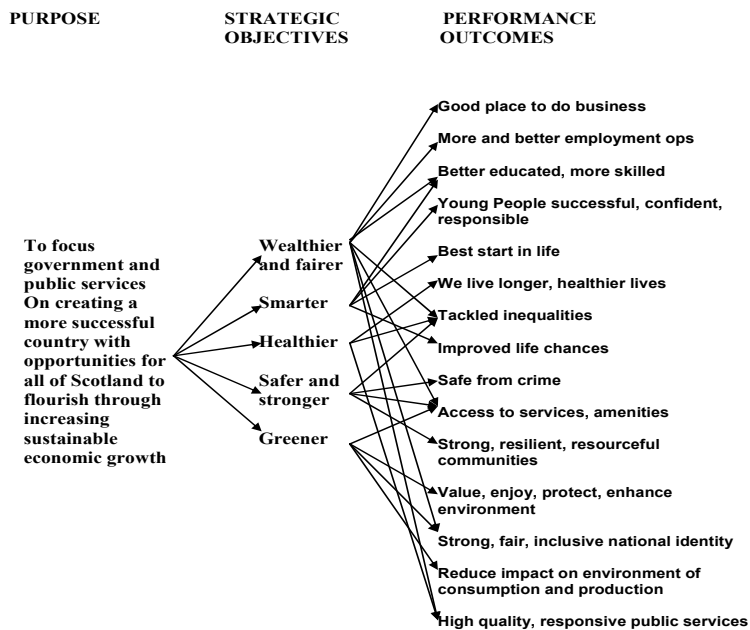
1.19 The five objectives spanning the key functions of Government identify the aspirations that the Government sets for its strategic plan. Their measurement for the purposes of evaluating the extent to which the objectives have been achieved requires more specificity. This is achieved through the national performance framework developed for the current (2007) three-year spending review, which sets out fifteen National Outcomes to be achieved (approximately 3 per strategic objective) over a ten year period. The framework also specifies the indicators through which measurement of the outcomes can be achieved at national and local level, largely through the collection of relevant administrative data, 45 in all.

1.20 A key theme that emerged from the interviews was the relationship between national and local policy development and evaluation. While the national evaluation requires standardized performance appraisal across the whole of Scotland, local evaluation adheres to the principle that delivery processes and the means of evaluating their outcomes can be negotiated locally in the form of ‘Single Outcome Agreements’ - adding another 52 local monitoring indicators to the 45 national indicators.

1.21 It was agreed with the Commissioning Panel to focus attention more at the upper level of the framework, especially on the National Outcomes rather than the performance indicators. This is because the achievement of the outcomes can be seen more in terms of a research enterprise, i.e. gaining understanding through statistical modelling of relationships between variables how likely it is that the delivery of a given service or intervention, in a given set of circumstances, will achieve a desired outcome. This will be reflected in changes in individuals in response to experience of, or exposure to, the policy. The performance indicators can then be used to supply direct evidence of this change in the time series that can be constructed from administrative data, e.g. employment rate, air pollution, smoking

prevalence and so on before and after implementation, with some local variation. Figure 1.1, derived from the Spending Review, sets out the relationships between the five strategic objectives and the National Outcomes schematically.

Figure 1.1 Strategic Plan



1.22 There are two features of this system which are distinctive and set it apart from its counterparts in other parts of the UK, especially England. First, as noted earlier, in accordance with the Virginia Model of service delivery the National Outcomes are used as goals to which local administrations can work in the delivery of services to bring about improvement in specified directions. These replace the 400 or so delivery targets that prevailed before the new performance framework was established.

1.23 The second distinctive feature is the responsibility given to local Government for both interpreting what needs to be done to achieve a given outcome and how the service is best delivered to achieve it. This may even include in some instances a specific target to be aimed at. As noted, the degree of negotiated autonomy in such an arrangement extends even to the indicators themselves that are most appropriate to identify whether the delivery has succeeded. However, notably at our expert group meeting the point was made that such a degree of devolved responsibility carries with it, in a sense, an even bigger requirement of standardising certain features of measurement. Without such standardization comparisons between one area and another become impossible, which means that relative improvement (or deterioration) of services cannot be appraised. Nor can the effects of different policy interventions be compared – i.e. if Shetland and Glasgow roll-out policies in different ways then they need some standardized local data to evaluate the effectiveness of each of them

1.24 We acknowledge that the report cannot attempt to embrace the whole range of local variation, as the Commissioning Panel, in their response to our interim report, made clear. We should focus on longitudinal research relevant to the National

Outcomes. However it is difficult to divorce the issue entirely from the work of the review, not least because it draws attention to the multi-level framework, through which policy is actually arrived at and is implemented. This may be taken to support more widespread interest than hitherto by Government in local area-based longitudinal studies of which Scotland has some excellent examples.

1.25 National level enquiries tend to be given priority in establishing population parameters for the explanatory models that are evaluated, but when it comes to applying their results to particular places questions may arise as to how relevant they are. On the other hand, as we consider later, in certain parts of some policy areas where the cultural component is minimal or non-existent, such as health, results are likely to be more widely applicable, e.g. the consequences of air pollution for lung disease. In this instance the local study has the definite advantage of enabling the multi-level features of service delivery via schools and other services to individuals and families to be fully investigated, supplying insights of relevance to the whole of Scotland. It is for this reason that the Avon Longitudinal Study of Parents and Children (ALSPAC) has been incorporated in the UK National Data Strategy funded by government and the research councils.

1.26 The approach of operating across all levels of the performance framework while focusing particularly on the top two has distinct advantages in relation to the project brief. This is because, as senior policy analysts told us, the major interest is not so much what predicts the achievement of a particular indicator, but the strength of the relationship between variables measuring policy and practice input with variables identified with policy outcomes or goals. In this scenario the immediate question that arises is how the five strategic objectives, through realisation in the fifteen National Outcomes, are best operationalised. Our Expert Group made the point that the linkage derived from the Spending Review, as shown in Figure 1.1, was subject to considerable variation depending on the precise interpretation put on the objectives. Thus, for example, implicit in almost all the objectives is the creation of not only better performing individuals in health, education, the economy and so on, but a more equal society. As improvements in life in one domain will affect improvements in others, most of the outcomes in various ways relate to this performance objective. Health inequalities, for example, though not mentioned explicitly, could be seen as embracing all 15 outcomes. Nevertheless the appeal of Figure 1.1 is that it does immediately set out the parameters of a possible research agenda. In this sense the top two levels of the performance framework turned out to be the right level of appraisal at which to work.

1.27 Another basis for classifying not so much the goals of a society, but the issues that need to be addressed in data terms, is that of the UK's "National Data Strategy". This links the scientific interests of the research councils with those of the UK Government. It is informative to compare the SG's five objectives with the five key research challenges that the national strategy identifies: *ageing population, migration, globalisation and the emerging economies, child development and education, carbon economy and environmental change*.

1.28 The notable difference with Scottish objectives (except implicitly) is *migration*. The loss of the best-educated section of the population in the past is now being reversed – as in Ireland - by a degree of in-migration much of it from the A8

European countries. Longitudinal research is a means of identifying such population movements in relation to the National Outcomes and is of particular importance in the Scottish context. The fact that longitudinal migration data is high up on the agenda for national investment in the UK will therefore provide a benefit to Scotland. This would be helped by making the topic explicit in the strategic plan.

1.29 Internationalisation of the research agenda is another important feature of the UK strategy as is the need to bridge current academic discipline boundaries and to improve data access. The research potential of administrative data held by the agencies that are central to the Scottish Government's plans is considerable, which includes pensions, social security, health, business, and vital statistics. Means need to be found for expanding access to these sources. All of these data strategy aspirations can be seen as elaborating key elements of Scottish longitudinal resource strategy. Again Scottish benefit can be derived from UK investments.

(d) Methodological considerations

1.30 In using longitudinal data to draw judgments about policy effectiveness the distinction has already been made between monitoring the effects of policies and evaluating the policy as a whole in the sense of linking (policy) cause with (outcome) effect. Our concern is with the latter for which the analytic strategy required is statistical modelling. We postulate a process through which a delivered policy will convert into a hypothesised outcome or outcomes and longitudinal data can be used to estimate the model's parameters, i.e. the relative effects of the policy intervention as opposed to that of other variables on the given outcome. There is a whole range of possibilities here from examining, very tightly, the likely returns to a particular policy intervention such as the current policy of reducing class sizes in early primary school, or community regeneration in the East of Glasgow - holding constant the effects of all variables that might be confounded with the policy shift - to 'structural' models embracing multiple causation. In applying the strategy a number of problems have to be confronted some of which are common to survey research generally and others take on particular force in longitudinal enquiries.

Selection bias

1.31 In interpreting the parameter estimates of statistical models in causal terms we have to beware of confusing improvement with self selection of families and individuals distinguished by certain attributes who took advantage of the new provision. We therefore need to control statistically the personal attribute variables lying behind such *selection effects*. This entails using studies that have sufficient breadth of coverage both cross-sectionally and longitudinally to make sure that all the relevant variables are included in the analysis. Longitudinal data sets are generally better able to yield such controls than cross-sectional data sets, because the temporal order of variables is established in the longitudinal design.

Ecological fallacy

1.32 Another potential hazard is the 'ecological fallacy' in which area level improvement is taken to signify improvement for all the individuals living there. Thus as officers put to us, urban regeneration as in East Glasgow may be judged

successful on the basis of an indicator such as employment rate. But this masks three separate reasons for the improvement only the first of which is identified with the policy goal: increased employability of the people living there; higher employability of people moving there to take advantage of improved opportunities; lower employability of people moving out. Only individual level longitudinal data can decide between them.

Ecological validity

1.33 The final form of information that can bear on the effects derives from a different mode of research altogether. Case studies of individuals and communities can often supply evidence of changes that are happening in the light of interventions, which cannot be revealed in national statistics. Particularly the nuances of process in the translation of delivery to outcomes in particular ecological contexts can be revealed through ethnographic and socio-biographical studies generating much rich data from observation and interviews with participants on the experience of the delivery process and how to improve it. Combined approaches with statistical studies offer the best strategy, using triangulation across different data sources, to gain insights into what works and what doesn't under what circumstances.

Measurement

1.34 The measurement of the input and outcome variables raises methodological challenges as does the sample on which a given longitudinal survey is based. Notably in Figure 1.1 the outcomes for any give objective combine both highly specific operational measures together with contextual features of the environment in which the policy is being implemented or the service delivery taking place. Thus *Wealthier and Fairer* combines the relatively straightforward skills enhancement and increased employment opportunities with a 'nice place to do businesses and 'inclusive national identity'. Apart from the inherent difficulty in assessing the latter, over time meaning and significance of these outcomes may change as what is judged to define quality of the local context shifts or matters more for one group of people rather than another. Thus, as was pointed out by the expert group, for the newly graduated a nice business environment with good local amenities may include pubs and clubs, whereas for young families high quality schooling and a safe environment may have top priority.

Sampling

1.35 The nationally representative sample takes precedence for judging the effectiveness of national policy in terms of national policy outcomes. But for the local policy delivery - where scope to adapt lies at the heart of the Government's approach - distortions may be introduced through generalisation of national findings to all localities. It may be bad enough to generalise findings from English longitudinal research on the effects of poor housing on social exclusion to Scotland, but to go further by extending them to Glasgow, where homelessness and workless families, for example, are way above the national average, may fail to recognise that some aspects of the local policy context do not match the national one. On the delivery side there is also much variation. Community management partnerships in Glasgow,

for example, include the Glasgow Local Authority as one partner among many, whereas in most other places the LA is automatically the lead partner.

1.36 Such cautions can of course be overstated. Much of policy relevance to one area is relevant to another, e.g. on matters of health and ageing. And an area study, such as the medical science-based West of Scotland longitudinal enquiry, has policy messages for the whole of Scotland, if not the whole of the UK and elsewhere. The main point to stress is that a national framework for evaluation makes most sense the more local variation can be encompassed within in it; fine tuning of its findings to local delivery needs and circumstances is then likely to be easier. The research solution is moving increasingly towards large scale multi-level longitudinal research designs to enable estimation of the separate effects of national and local variation. But such approaches are relatively rare among existing studies. We argue later for an intermediate stage where local longitudinal studies on special topics complement national ones.

Sample loss

1.37 Undoubtedly the biggest challenge to meet in longitudinal research is reduction in participation over time. Such sample loss or 'attrition' occurs for a variety of reasons ranging from untraceable after a house move to refusal to take part. If the dropout is random, then the only loss statistically is to the precision of estimates as the sampling error goes up with the decline in sample size. The stopping point comes when the sample decline renders the study unusable, With the large samples typical of the UK wide longitudinal studies this rarely happens, though the Scottish sample within them may on occasion be too small, e.g. for particular sub-groups, to rule out a particular piece of analysis. The more serious issue arises when the attributes of the drop out are related to the outcome variable of interest in which case the estimates obtained will become increasingly biased. The major studies do a lot to reduce drop-out to the minimum and generally such biases are small mainly residing in more men than women and the less educated more likely to leave the study. However, for sub-samples they may be much larger; so if the study is to be used, the bias needs to be controlled by re-weighting to restore the wave 1 distributions of key variables. Where the missing data is at the level of individual variables through non-response, refusal to answer a question and so on, statistical imputation methods may be needed to replace the missing values by estimates of what they should be based on all of the available data.

Fading relevance

1.38 Another challenge to be met in longitudinal data use resides in the datedness of the study as whole or of any given sweep. Many life course processes such as those to do with health and illness remain relatively stable over time. Others will shift as the social context changes for political or other reasons reflecting social trends. Another yardstick for judging the value of given study therefore is whether the findings from it still have relevance for current conditions. If they do not then the study may be useful in supplying baseline data for the changes that have occurred. But this does not remove the need for contemporary data and consequently the need for continual updating of the longitudinal resource with new studies.

(e) Analytic approach

1.39 The commissioning panel and the expert group endorsed the strategy of starting with a review of the design and coverage of longitudinal studies to establish their relevance to the strategic objectives and the National Outcomes. To meet this purpose a grid cross-classifying each study against each outcome would then be constructed. The next step was less obvious. A study by study analysis would not only be in danger of drowning the reader in the details of each study, but would tend to down play complementarities between them. The final strategy was shaped by discussion at the expert group meeting, which argued for a two pronged approach. The first would be to set out a series of research scenarios in the form of 'vignettes' in which studies linked together around the variables they contained could be used to address the objectives and the outcomes in each of the main policy areas. The second would go further in terms of identifying crosscutting issues that would need to be resolved in establishing where the best pay-off from investment in particular studies was likely to lie.

CHAPTER 2 LONGITUDINAL RESEARCH RESOURCES

(a) Resources Reviewed

2.1 The previous overviews of longitudinal research resources undertaken were often part of a broader review including cross-sectional surveys, but between them they identify a good range of relevant data sources for the purposes of this study. The longitudinal research resources can be classified in terms of one over-riding criterion – ‘fitness for purpose’. This will vary from one project using the data to the next depending on the research question that the data are required to address. Thus the list below is only loosely linked to any idea of a relevance hierarchy though generally some studies tend to be more central to current purposes on most criteria than others. Coverage of features of Scottish policy and systems are likely to be best served by studies designed and run in Scotland (a). Comparative value within the UK is best served by UK wide studies with ideally a boost sample for Scotland (b). Multilevel enquiries, where ecological context is an important feature of the research topic, will be best served by area studies embracing variation at the level of the community and local institutions as well as the individual (c). Administrative data used to augment (a) to (c) can greatly enhance its value (d).

- a) Longitudinal studies designed and implemented exclusively in Scotland to address specifically Scottish issues and contexts alongside the more general demographic information needed to cross classify them, e.g. Growing up in Scotland (GUS)
- b) UK-wide longitudinal studies containing sufficient numbers for analysis in Scotland, especially those including a Scottish boost to ensure adequate numbers for analysis, e.g. British Household Panel Survey (BHPS)
- c) Area based studies located in Scotland on topics for which findings could be reasonably generalised to the rest of the Scottish population, e.g. West of Scotland Study (WoS 1116,2007)
- d) Administrative data bases from which longitudinal datasets can be constructed, e.g. Department of Work and Pensions’ Work and Pensions Longitudinal Study (WLPS)
- e) UK wide longitudinal surveys including a Scottish sample, but insufficient numbers for robust Scottish longitudinal analysis, e.g. Families and Children Study (FACS)
- f) Surveys carried out in England without a Scottish sample but much relevance for Scottish policy objectives and possibly for guiding the development of analogous Scottish surveys, e.g. English Longitudinal Study of Ageing (ELSA)
- g) Overseas and comparative studies, e.g. Study of Health an Retirement in Europe (SHARE)

2.2 Broadly the study focussed on the first four of these types of survey (a-d) with overall 29 studies reviewed in depth (See Table A, Appendix 3). The reason for including administrative data in the table is that in the course of doing the review, especially arising from the interviews conducted with senior Analytic Services personnel in the different policy divisions, the critical role of administrative data became a major theme. It was argued that there was a pressing need to link the different sources together in health, education, employment and so on, would

transform their value in policy monitoring terms. Linkage with existing longitudinal surveys, such as the British Household Panel Study, the UK Household Longitudinal Study and the British Birth Cohort Studies would also greatly enhance their value for policy research purposes.

2.3 It was pointed out at the expert group meeting that the general emphasis in the initial selection of studies was on social, educational and health policy areas. Longitudinal data sources on business activity tended to be lacking. Yet the economic goal of “Wealthier and Fairer” with a major role for business had been placed first among the Government’s strategic objectives. The addition to the list of the Inter-departmental Business Register (IDBR), the Annual Survey of Hours and Earnings (ASHEDP) and the WPLS based on tax and benefits data helped make good the gap.

2.4 Table 2.1 lists all the studies that have been reviewed, restricting selection to those meeting the top four criteria in the list above including information about their relevance for Scottish purposes. Funding sources are also shown with the current main source in italics and sample sizes. It should be noted that other studies not included in Table 2.1 could prove valuable in offering relevant information for Scottish policy: examples are those based exclusively in another UK country, such as:

- the English Longitudinal Study of Ageing (ELSA on health and aging in England)
- the cross-national study of Health and Ageing in Europe (SHARE), modelled on ELSA. Each study’s design and coverage was analysed in terms of each of the fifteen National Outcomes to which they were most closely related (Table A1 Appendix)
- the Longitudinal Study of Young People in England (LSYPE) – an annual follow-up survey of 19,000 young people in year 9 (aged 13-14) of secondary schools in England.

Table 2.1 Longitudinal Studies Reviewed

	Acronym	Survey	Main funding source	Type	Special features
1	ASHEPD	Annual Survey of Hours and Earnings Panel	<i>Govt-UK(Admin)</i>	UK Admin data	Earnings data
2	BCS	British Cohort Study (1970)	<i>Academic/Govt</i>	UK Study	Scottish sample 1100 max
3	BEPS	British Election Panel Study	<i>Academic</i>	UK study	Scottish sample 950- 500
4	BHPS	British Household Panel Survey	<i>Academic/Govt</i>	UK study with Scottish boost	UK study Scottish sample 1,500
5	Aberdeen	Children of the 1950s	<i>Academic</i>	Scottish area study Cognitive ability	Sample 7000
6	ESYTC	Edinburgh Study of Youth Transitions and Crime	<i>Academic/Govt/LA</i>	Scottish area study	Sample 4,317 89%
7	FACS	Families and Children Survey	<i>Govt- UK</i>	UK study	Scottish sample 7,000 families
8	GHS	General Household Survey	<i>Govt-UK</i>	UK study	Scottish sample 893 households
9	GWG	Go Well Glasgow	<i>LA</i>	Scottish area study	6,000 individuals in 14 key areas ⁴
10	GUS	Growing up in Scotland	<i>Govt</i>	Scottish national study	Sample 5,217 at birth 2859 at age 2
11	HOPE	Healthy Old People in Edinburgh	<i>Govt</i>	Scottish area study	Sample 603reduced to 201
12	IDBR	Interdepartmental Business Register	<i>Govt-UK (Admin)</i>	UK admin data	Businesses
13	LFS	Labour Force Survey	<i>Govt-UK</i>	UK study	Scottish sample 12,000
14	LOS	Life Opportunities Survey'	<i>Govt-UK</i>	UK study	In prospect, starting with screening

⁴ The *Go Well* research programme has a number of linked research projects one of which, the Community Health and Wellbeing Survey, consists of a 10 year repeated cross sectional survey and a longitudinal element at the individual level in fourteen study areas in Glasgow, with a sample of 6000 residents achieved at each wave. The longitudinal element, consisting of both a tracker survey and a tracer survey, will attempt to track 1,000 individuals from the two areas undergoing the most significant change'. For more details on each of the elements see the project summary in Appendix 3.

					sample of 50,000
15	LSR	Longitudinal Study of Refugees	<i>Govt-UK</i>	UK Study	In prospect with Scottish sample 300
16	MCS	Millennium Cohort Study	<i>Academic/Govt</i>	UK study with Scottish boost	Scottish sample 2,336- 1814
17	NCDS	National Child Development Study (1958 Cohort)	<i>Academic/Govt</i>	UK study	Scottish sample around 1000-
18	NSHG	National Study of Health and Growth	<i>Govt-UK</i>	British study	1972-1994 Scottish sample 2000
19	SCORE	Scottish Continuous Recording System	<i>Govt</i>	Scottish admin data	New tenancies
20	SHARP	Scottish Housing and Regeneration Project	<i>Govt</i>	Scottish study	723 divided between intervention and control groups
21	SLS	Scottish Longitudinal Survey	<i>Academic/Govt</i>	Scottish	Sample 274,000
22	SSLS	Scottish School Leavers Study	<i>Govt</i>	Scottish study	Sample 7567 to 1627
23	SSA	Scottish Survey of Achievement	<i>Govt</i>	Scottish study	Sample 36,000
24	UKHLS	UK Household Longitudinal Survey	<i>Academic/Govt</i>	UK study	Scottish sample 7,500 individuals
25	WAS	Wealth and Assets Survey	<i>Govt-UK</i>	UK study	Scottish sample 5,500
26	WERS	Workplace Employee Relations Survey	<i>Govt-UK</i>	UK study	Scottish sample 218 workplaces
27	WoS1116	West of Scotland 11-16 Study: Teenage Health	<i>Academic</i>	Scottish area study	Sample 2,586
28	WoS 2007	West of Scotland Twenty-07 Study	<i>Academic</i>	Scottish area study	Sample 1000 in each of three age cohorts 15, 35 and 55
29	WPLS	Work and Pensions Longitudinal study	<i>Govt-UK (Admin)</i>	UK admin data	Tax and benefits

* = Boosted Scottish sample; ** = administrative data

2.5 As noted earlier it became clear from the work of the expert group and the interviews with officials that a classification of longitudinal resources in terms of importance in relation to meeting the objectives of the scoping study as originally

formulated was not necessarily correct. The longitudinal studies spanning the whole of the UK offered the opportunity for comparative analysis between Scotland and the other UK countries, which gave added value to the data collected than that obtained from studies located in Scotland alone. This is because, as argued earlier, comparative analysis enables different policy contexts to be taken into account in evaluating the effectiveness of Scottish policies, rather in the nature of the natural experiment. Such reasoning also applies to the Scottish regions, especially the central belt as opposed to the Highlands and Islands, and other rural areas and the differences between the large conurbations such as Glasgow and the other towns and cities of Scotland.

2.6 It is also the case that the value of particular kinds of longitudinal survey located in Scotland, as opposed to other places, will depend to a certain extent on the subject matter of the survey. Thus the distinctive education and judicial systems in Scotland compared with the rest of the UK have components that demand special coverage but are easily overlooked in UK-wide surveys. The UKHLS is a notable exception with a planned Scottish supplementary module. On the other hand, some features of all policy areas, especially those such as health and environment with a bio-physical base, translate well from one UK country to another and common data therefore applies. Thus in such cases, a study carried out in one part of the UK will generalise to the others. Recognition of the ability to capitalise on work carried out elsewhere had the double advantage of saving money in the Scottish budget for undertaking longitudinal research. It also enabled Scotland to learn from the experience (and mistakes) of earlier projects.

2.7 Good examples here are the English Longitudinal Study of Ageing (ELSA), which currently has no Scottish equivalent - though one is under consideration - and the Longitudinal Study of Young People in England (LSYPE), which similarly has no direct counterpart in Scotland.

2.8 An issue of central importance to Scotland, identified in Chapter 1, which took on a different form and had less salience in English terms, was out-migration, now being replaced increasingly following devolution with inward-migration. The critical issues here relate to the gross migration effects in either direction as opposed to the net migration effects identified with population expansion or decline. A further complication is people who live part of the year in both countries. However, there is currently no single source that covers migration comprehensively and reliably. The National Passenger Transport survey suffers from the problem that much travel in and out of Scotland is via England. Employment (DWP) and GP registration data (NHSCR) is good for data on entry to Scotland but is much weaker on out-migration because individuals fail to register leaving. Such surveys as the LFS and the new UKLHS can identify migrants but the numbers are too limited for a research sample in their own right. The SLS solves the numbers problem but the ten year interval between censuses limits the coverage of changing migration patterns.

2.9 The other side of the issue of comparison across the UK regions is comparability within and between the regions of Scotland. As noted previously there is a major emphasis in the Scottish Government's strategic plans on shifting responsibility for the formulation and delivery of services to the local community – in practice, local authorities and the partnership arrangements existing below this level.

One administrative data facility of particular interest is the data zones which supply small area statistics for units as small as electoral divisions (wards in England and Wales). Such geographically defined units are enormously valuable in relation to monitoring the effectiveness of local policy, again offering quasi experimental opportunities when comparing different regions. For example when Standard Grade was introduced in Scotland, its introduction was staggered over an extended period in the 1980s and 1990s across different regions; so those that did not have it could in principle be compared with those that did. The opportunity was thus offered to find out to what extent the introduction of the new qualification had made a difference, for example, to young people staying on in education and the level of achievement they were able to demonstrate. This is a good serendipitous example of what is often referred to as a 'waiting room' design.

(b) Scottish Sample Sizes

2.10 Sample sizes are a perennial problem in UK longitudinal surveys, including a Scottish sample. With under 10% of the UK population living in Scotland, longitudinal surveys based on currently participating samples of up to 10,000, such as the birth cohort studies can only expect to achieve a thousand cases in Scotland and although attrition tends to level off at older ages, numbers are still likely to continue decline to a point where separate Scottish analysis ultimately becomes no longer viable e.g. less than 500 cases.

2.11 Substantial sample sizes of 2,000 or more are generally needed to produce reliable statistics on the Scottish population alone. A study like GUS is particularly valuable in starting from higher numbers than this to ensure that representation of the Scottish population can be accompanied by much detailed analysis of special sub groups such as those in urban and remote areas, for example. The answer for the more recent UK studies has been to boost Scottish samples e.g. the Millennium Cohort Study and the BHPS. It was notable that an awareness of these boosts was not common among policy analysts, which perhaps accounts for the reason why there has been relatively little expansion of the use of the BHPS since the boost occurred.

2.12 It was pointed out by the expert group, however, that such boost samples are only strictly necessary when there is likely to be a strong interaction between the Scottish system and the longitudinal information collected on the population connected with it, i.e. the national context/person interaction will vary between England and Scotland, e.g. for post -16 transitions. If such interactions are not present then 500+ cases in the Scottish sub sample is likely to be sufficient.

2.13 Boosts are, in any event, never entirely satisfactory for ongoing studies, because of the missing data for sample members at younger ages preceding the period when the boost was introduced. In this respect the expansion of the British Household Panel Study into the replacement UK Household Longitudinal Study, eight times as large, is highly significant for Scotland (a sample of 7,500 individuals can be expected). Such a sample will certainly be large enough for national analysis and some area comparison, but even then not down to the level of local areas, such as comparing Glasgow with Edinburgh. Only specialised area-specific studies, such as the West of England Studies and "Go Well in Glasgow", can generate the data

that are needed to make specific generalisations about the local population in relation to a given policy outcome.

(c) Matching the studies against the performance outcomes

2.14 We now return to the 15 National Outcomes focusing on the way all the designs and coverage of the 29 studies reviewed bear on each of them. Table 2.2 needs to be read in conjunction with Table 2.1 which supplies the acronyms for each of the studies and their names spelt out in full.

Table 2.2: National Performance Outcomes by Longitudinal Surveys

	ASHEPD	BCS1970	BEPS	BHPS	Aberdeen	ESYTC	FACS	GHS	GWG	GUS
1.We live in a Scotland that is the most attractive place for doing business in Europe	Yes									
2.We realise our full economic potential with more and better employment opportunities for our people	Yes			Yes	Yes	Yes	Yes	Yes		
3.We are better educated, more skilled and more successful, renowned for our research and innovation				Yes	Yes	Yes	Yes	Yes		
4.Our young people are successful learners, confident individuals, effective contributors and responsible citizens		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
5.Our children have the best start in life and are ready to succeed		Yes		Yes	Yes		Yes			Yes
6.We live longer, healthier lives		Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
7.We have tackled the significant inequalities in Scottish society					Yes	Yes		Yes	Yes	
8.We have improved the life chances for children, young people and families at risk		Yes		Yes	Yes	Yes	Yes		Yes	Yes
9.We live our lives safe from crime, disorder and danger			Yes	Yes		Yes				
10.We live in well-designed, sustainable places where we are able to access the amenities and services we need		Yes	Yes	Yes			Yes		Yes	Yes
11.We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others										
12.We value and enjoy our built and natural environment and protect it and enhance it for future generations		Yes		Yes		Yes		Yes	Yes	Yes
13.We take pride in a strong, fair and inclusive national identity			Yes	Yes						
14.We reduce the local and global environmental impact of our consumption and production										
15.Our public services are high quality, continually improving, efficient and responsive to local people's needs		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes

* Note: abbreviated descriptions – the full descriptions are in Appendix 3

	HOPE	IDBR	LFS	LOS	LSR	MCS	NCDS	NSHG	SCORE	SHARP	SLS
1. We live in a Scotland that is the most attractive place for doing business in Europe		Yes									
2. We realise our full economic potential with more and better employment opportunities for our people			Yes	Yes	Yes		Yes				Yes
3. We are better educated, more skilled and more successful, renowned for our research and innovation			Yes				Yes				Yes
4. Our young people are successful learners, confident individuals, effective contributors and responsible citizens						Yes	Yes				Yes
5. Our children have the best start in life and are ready to succeed						Yes	Yes	Yes			
6. We live longer, healthier lives	Yes		Yes			Yes	Yes	Yes		Yes	Yes
7. We have tackled the significant inequalities in Scottish society			Yes	Yes	Yes		Yes	Yes			Yes
8. We have improved the life chances for children, young people and families at risk						Yes	Yes	Yes			Yes
9. We live our lives safe from crime, disorder and danger							Yes			Yes	
10. We live in well-designed, sustainable places where we are able to access the amenities and services we need						Yes	Yes			Yes	
11. We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others					Yes	Yes				Yes	
12. We value and enjoy our built and natural environment and protect it and enhance it for future generations		Yes	Yes			Yes	Yes		Yes	Yes	Yes
13. We take pride in a strong, fair and inclusive national identity					Yes	Yes					
14. We reduce the local and global environmental impact of our consumption and production											
15. Our public services are high quality, continually improving, efficient and responsive to local people's needs			Yes	Yes	Yes	Yes	Yes				

* Note: abbreviated descriptions – the full descriptions are in Appendix 3

	SSLS	SSA	UKHLS	WAS	WoS1116	WoS2007	WPLS	WERS
1.We live in a Scotland that is the most attractive place for doing business in Europe								Yes
2.We realise our full economic potential with more and better employment opportunities for our people	Yes		Yes				Yes	Yes
3.We are better educated, more skilled and more successful, renowned for our research and innovation	Yes	Yes	Yes				Yes	
4.Our young people are successful learners, confident individuals, effective contributors and responsible citizens	Yes	Yes	Yes					
5.Our children have the best start in life and are ready to succeed		Yes			Yes			
6.We live longer, healthier lives		Yes	Yes		Yes			
7.We have tackled the significant inequalities in Scottish society	Yes		Yes	Yes	Yes		Yes	
8.We have improved the life chances for children, young people and families at risk	Yes				Yes		Yes	
9.We live our lives safe from crime, disorder and danger								
10.We live in well-designed, sustainable places where we are able to access the amenities and services we need			Yes					
11.We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others			Yes		Yes			
12.We value and enjoy our built and natural environment and protect it and enhance it for future generations			Yes			Yes		
13.We take pride in a strong, fair and inclusive national identity			Yes					
14.We reduce the local and global environmental impact of our consumption and production			Yes					
15.Our public services are high quality, continually improving, efficient and responsive to local people's needs	Yes		Yes		Yes		Yes	

* Note: abbreviated descriptions – the full descriptions are in Appendix 3

2.15 The overall picture we get from Table 2.2 is high relevance of the reviewed studies for some outcomes and relatively little if any for others. Thus outcomes 3 - 8 concerned with education and employment are well covered by a large number of studies, whereas others such as 1 concerned with business environment are barely touched by them and what is there depends on administrative data. Those outcomes concerned with community and environment are similarly weakly represented in the studies. Indirect measures may in some instances be all that can be used.

2.16 Another general point arising from this first attempt at classification is the potential value of the multipurpose longitudinal studies such as the BHPS/UKHLS and the 1958, 1970 and Millennium birth cohort studies. However the prime focus of Table 2.2 is coverage, which may not always be so important when date of data collection and other features of design are taken into account. It is then that the more specialised continually updated resources, such as the Labour Force survey and the associated DWP and business administrative data, come into their own. This makes the point that the use of multiple longitudinal data sources and triangulation across them to draw conclusions is essential strategy to make best use of them.

CHAPTER 3 POLICY SCENARIOS AND VIGNETTES

3.1 The previous chapter mapped the 15 strategic outcomes across the different longitudinal research resources that could be used to evaluate them. In this chapter we take the exercise a stage further by examining through a series of vignettes, the kinds of research scenarios that could be pursued. In each case we establish what the theoretical proposition or propositions are that lie behind the outcome to which the Government aspires. We then map out the means of achieving it through the inputs available in terms of provision from the different policy areas - principally at national level, but also considering their impact ultimately as delivery systems locally. In each case we identify the measures available in the different datasets to enable us to operationalise the variables relevant to the input-outcome connection. This takes account of short-term and long-term aims, some of which are not easily operationalised from the outcomes as specified. Thus, for example, major economic shifts affecting either the population, or the business enterprise at the centre of it, are likely to take some time to materialise. The best kinds of studies are therefore those that enable short, medium and long-term assessments to be made.

3.2 The exercise does not attempt to be exhaustive in the sense that every study or dataset that could conceivably contribute to the research scenario is included. Rather we seek coherence in linking the potential contributions of key studies - also taking account of coverage issues, sample size and attrition. Each study needs to be viewed in the context of the data specification to which it is directed with subtle variation to be expected from one source to the next. Triangulation across sources is the best assurance of robust conclusions.

3.3 The outcomes are grouped in terms of the 5 strategic objectives which enable us, in very general terms, to approach the task in terms of 8 broad policy domains: economy; education; health; protection; community; environment; inequality; and identity. The outcomes have been re-ordered slightly in order to group them under these headings. The groupings are illustrated below:

A. Economy

Outcome 1: We live in a Scotland that is the most attractive place for doing business in Europe

Outcome 2: We realise our full economic potential with more and better employment opportunities for our people

B. Education

Outcome 3: We are better educated, more skilled and more successful, renowned for our research and innovation

Outcome 4: Our young people are successful learners, confident individuals, effective contributors and responsible citizens

Outcome 5: Our children have the best start in life and are ready to succeed

C. Health

Outcome 6: We live longer, healthier lives

D. Protection

Outcome 8: We have improved the life chances for children, young people and families at risk.

Outcome 9: We live our lives safe from crime, disorder and danger.

E. Community

Outcome 10: We live in well-designed, sustainable places where we are able to access the amenities and services we need.

Outcome 11: We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others.

Outcome 15: Our public services are high quality, continually improving, efficient and responsive to local people's needs.

F. Environment

Outcome 12: We value and enjoy our built and natural environment and protect it and enhance it for future generations.

Outcome 14: We reduce the local and global environmental impact of our consumption and production.

G. Inequality

Outcome 7: We have tackled the significant inequalities in Scottish society.

H. Identity

Outcome 13: We take pride in a strong, fair and inclusive national identity.

3.4 There is a degree of similarity between some of the National Outcomes listed above and the Scottish Government's seven Purpose targets described in Chapter 1. These are a challenging set of high level mostly economic targets that include specific benchmarks which will track progress in Scotland's economic performance. Of the seven targets, those referring to 'solidarity' (which is concerned with the increase of income, particularly for the most economically disadvantaged), 'cohesion' (where the focus is in narrowing the participation gap between Scotland's best and worst performing regions) and 'sustainability' (which is concerned with reducing emissions) have perhaps the most similarity with issues addressed specifically by the national outcomes.

3.5 A particular focus is on process variables that are amenable to influence, i.e. policy can be sensibly directed at modifying or moderating their influence through the injection of relevant resources. The effect of the policy can be modelled by variables reflecting the different outcomes of the process. Other variables describing the different demographic contexts in which the outcome is happening are relatively fixed features in the social environment not amenable to policy influence. Nevertheless such contexts can reflect strong propensity to risk (or protection). Thus apart from their importance as conditioning variables to hold constant in the analysis of effects they also direct attention to sections of the population where policy intervention is particularly needed. Thus obesity in children, reflecting often health

inequalities related to class and geography may be seen as amenable to policy influence through, for example, a health education programme. The tailoring of the programme to different sections of the population will be informed by such demographic features as gender, class, ethnicity and location.

3.6 In what follows, we set out such an analysis of variables and data sources for each of the 15 National Outcomes. Each vignette is arranged into four sections. The first provides a definition of the key concepts contained within the National Outcome that requires measurement. The second outlines the benefits of a longitudinal approach and considers investigations of the issues within the outcome thus 'operationalising' it in research terms. The third section appraises the potential contribution towards evaluation of the outcome that could be made from existing longitudinal resources. The fourth highlights any key gaps, obstacles or challenges related to the use of longitudinal data for evaluation of the outcome.

A ECONOMY

Outcome 1: We live in a Scotland that is the most attractive place for doing business in Europe
--

Definition of key concepts

A1.1 This outcome is identified solely with the objective of a ‘wealthier and fairer’ Scotland, which is directed towards a situation where businesses and the people who work in them and consume their products are able to increase their wealth and more people can share fairly in that wealth.

A1.2 The Spending Review states that “private business is the principal driver of increased productivity, employment growth, competition, innovation and national prosperity”⁵. On this basis, an “attractive place for doing business” might be one where business set-up is relatively straight forward, encouraged and well supported, resources such as the necessary workforce (the right numbers and with the right skills or, and perhaps more importantly, the capacity to acquire them) and workspace (of the right size, location and with good transport links) are readily available and sustainable over the long term. Other aspects of infrastructure such as good quality education and housing for the workforce are also important for ensuring that the effective businesses can thrive and expand.

A1.3 An attractive business environment may also be one in which businesses are encouraged to take risks, and are supported in doing so, especially as these risks will often result in more striking instances of success although many will fail. Thus progress against this outcome should not only be measured through businesses achieving and sustaining economic successes but the extent to which risk-taking is part of the economic approach.

Evaluating progress towards this outcome

A1.4 The benefit of having longitudinal data available to explore progress on this outcome is that there is an opportunity to identify those factors that are conducive to commercial success and those that are likely to result in business closure. By doing so, policy interventions can seek to create an ‘attractive’ business environment. For example, analysis would explore the extent to which each individual factor, and combination of factors (local infrastructure) – business support, skilled workforce, education system, housing, transport – impacts on positive economic outcomes defined via high employment rates, profitability and economic stability.

A1.5 To measure progress against this outcome, therefore, the data must present the opportunity to look at business start-up rates, to monitor changes in the number, types, and locations of new business and to track the success of businesses (particularly new businesses) over time and to understand what level of failure is a necessary accompaniment to a vibrant economy. On the latter point therefore, information on the number of businesses closing down and their reasons for doing

⁵ p12

so must also be available. Data must also be available on the local infrastructure which supports business including the skills and availability of the workforce, access to schools and colleges, public transport and other services, and the quality and availability of good housing stock. Furthermore, to assess whether or not Scotland is the most attractive place for doing business in Europe, whatever data is generated to measure performance against this outcome in Scotland must also be available for other European countries. In terms of risk-taking, the educational and cultural prerequisites of a risk-taking society may also be investigated.

Contribution of existing data

A1.6 Only limited longitudinal data is available which is of relevance to the measurement of this outcome. However, the Inter-Departmental Business Register (IDBR), being a comprehensive administrative dataset covering businesses in all parts of the economy across the UK, provides particularly detailed data for Scotland.

A1.7 Data from the IDBR, which is already used to provide an overview of Scottish economic development and prospects, could potentially be used longitudinally to track the prospects of businesses at various levels – either as whole organisations with numerous separate, but related businesses (enterprise groups), as single, but larger, businesses with various sites ('enterprises'), or as individual sites such as a factory or shop (local unit). The IDBR can be used to look at businesses of a particular size (either in terms of employees, or turnover) or within a particular industrial classification (such as manufacturing or construction). Hence whether or not Scotland is an 'attractive' place to do business can be explored across business of very different characteristics. For example, using this dataset, the relative attractiveness of Scotland as a place to do business could be compared between a small retail outfit, and a large multi-national corporation. This would involve identifying suitable businesses in the database which matched these definitions and collecting baseline data on their profitability and turnover for example. Tracking the progress of these groups of businesses over time, and comparing their relative performance, would allow an understanding of which is more likely to thrive, and why. This evidence can then influence policies and interventions to support failing businesses or to create an environment which reduces the likelihood of failure. Furthermore, within a particular classification, successful (i.e. those who have thrived over time) and unsuccessful businesses could be identified and explanations explored for their relative success or otherwise.

A1.8 Whilst presenting a significantly more limited dataset for Scotland compared to the IDBR, in terms of the type and number of establishments included in the survey, WERS does present a range of additional, and extremely useful, data not included in the IDBR about the particular employment practices operated by each organisation in the survey, as well as providing most of the information about the business which would also be available via the IDBR. Furthermore, by linking in data from the cross-sectional employee survey, WERS presents a perspective (of the employee) not available from IDBR. Importantly, for the purposes of this outcome, WERS data not only quickly allows the identification of businesses which have not lasted for the duration of the panel, but also enables the clear identification of change in business characteristics (such as the type of products made, or the number of employees) and the exploration of reasons for these changes during the

period between data collection. In a longitudinal sense, this additional data is potentially important for identifying further factors which contribute to the success or otherwise of businesses in Scotland. Thus, research involving this dataset may explore the relative impact on economic stability or success of changing business practice in line with wider business changes. For example, WERS data could explore the impact of introducing family friendly or flexible working policies on long-term staff retention and productivity. Family friendly policies and flexible working are treated as explanatory variables along with other elements of the business, and perhaps the wider market; staff retention or increased productivity are treated as outcomes. A further example would be tracking the impact of varying business rates on employment, locational decisions and profitability. Analysis permits an understanding of the individual effect of these inputs on the outcomes, all other changes and factors considered.

A1.9 The business-related datasets represent key examples of the power of data-linkage. For example, information on earnings taken from ASHE can be linked, by organisation, to WERS data. WERS data can also be linked to the IDBR and to longitudinal financial performance information collected as part of the Annual Business Inquiry.⁶

Gaps, obstacles and challenges

A1.10 Examination of the analytical needs of this outcome highlighted the necessity for good quality business data that can track the fortunes of business operating in Scotland. However, the challenge is incorporating within that analysis the contribution of numerous other, non-business factors which are essential for a thriving business environment requiring complex, multi-level analytical techniques.

⁶ See Bryson, A., Forth, J. and Barber, C. (2006) (Eds.) *Making Linked Employer-Employee Data Relevant to Policy*, DTI Occasional Paper No.4, at www.psi.org.uk/pdf/2006/linkedEmployerEmployeeData for more discussion on this topic.

Outcome 2: We realise our full economic potential with more and better employment opportunities for our people

Definition of key concepts

A1.11 This outcome, like that related to doing business in Scotland, is solely associated with the objective of a 'wealthier and fairer' Scotland. There are a number of key issues that it addresses and which have to be extrapolated to assess our ability to measure it using longitudinal data.

A1.12 Realising our 'full economic potential' would suggest creating a situation where everyone who is able to work, in whatever capacity, can do so. One obvious aggregate measure of this would be the rate of employment or unemployment; increasing employment, and decreasing unemployment would suggest progress is being made against this area of this outcome. At the individual level job history since leaving school is needed. However, it is also important to consider work which is unpaid and the implicit financial contribution this makes to the economy.

A1.13 Having 'more' employment opportunities could simply be interpreted as creating an economic environment where jobs are readily available. However, it also implies that those jobs represent a greater variety of employment opportunities, and opportunities which are available to those groups who face particular barriers when trying to find suitable work, or are more suitable for the available workforce. Data from the 2006 Scottish Employer Skills Survey indicates that 8% of workplaces have vacancies that they cannot fill because applicants lack the necessary skills, qualifications or experience. This accounts for about 1.1% of total employee jobs. Improving the utilisation of skills in the workplace and stimulating increased demand for skills from employers is key to the success of this outcome as acknowledged by the Skills for Scotland strategy document.⁷

A1.14 'Better' employment opportunities can be construed as a greater number of higher skilled and better paid jobs, as suggested in the Spending Review, but there are a huge number of variable employment factors, beyond skill-level and wages, which could be improved to create 'better' jobs. These include management/employee relations, employee benefits, availability of flexible working arrangements and family-friendly policies, employee pension schemes and trade union membership. Longitudinal data enables changes in these factors to be monitored over time within individual business, or at industry or sector level.

Evaluating progress towards this outcome

A1.15 Information on employment rates is already available from a range of sources, most prominently the Labour Force Survey which provides quarterly updates. Whilst essential, and useful, this cross-sectional data is limited in that it does not determine what proportions of those who are unemployed remain unemployed over the longer

⁷ Skills for Scotland: A Lifelong Learning Skills Strategy, available online at www.scotland.gov.uk/publications/2007/09/06091114/0

term or who eventually return to work. To measure progress against the outcome in this sense would require longitudinal data which can track the longer-term job histories and prospects of those individuals who are unemployed at any particular point in time. In particular, longitudinal survey data can permit an investigation of the factors and motivations which lead to those individuals returning to, and remaining in, paid employment, and/or the barriers which prevent them from doing so. With a large enough sample, these features of labour market participation can be examined for particular sub-groups who face specific barriers such as parents, disabled people and some minority or ethnic communities. Longitudinal data can also be used to investigate the reasons why people become unemployed.

A1.16 Two levels of data are required here – one which provides information on individuals, the other which provides information on businesses and the ability to link these data is key. At the individual level, detail on the characteristics of those groups who find it most difficult to obtain employment, the barriers that prevent them from taking employment, the interventions or processes that allow them back into work, and the situations that allow them to stay there must be available. With many of these groups representing small, and hard-to-reach, sections of the population as a whole, this is a particularly challenging task. At the business level, information which describes the characteristics of the working environment and working practices is necessary along with information which measures the demand for and utilisation of skills by businesses.

A1.17 The data needs to be linked to inputs in terms of the skills acquisition and employability of individuals and employment opportunities offered by businesses leading to high quality outputs measured by earnings, high GDP, a narrowing earnings gap and other national and local economic indicators. Longitudinal data allows modelling at an individual level of patterns of employment and unemployment over the long-term with factors explaining employment and unemployment identified. For example, information on gross flows over time between different labour force categories (employed, unemployed and economically inactive) can be examined providing detail about people who have moved between the categories. Also, longitudinal information is useful for following the subsequent activities and circumstances of people affected by specific policy initiatives, e.g. business start-up grants in regeneration areas and to compare them with other groups in the population not subject to the policy. At a business level, those businesses or sectors which are most pro-active in improving their employment opportunities can be identified and lessons learned. On the other hand, those businesses where no improvement is made can be targeted, reasons identified and specific interventions designed to assist them.

Contribution of existing data

A1.18 The Labour Force Survey is the key source for employment and unemployment statistics for government departments in the UK. Despite having only a limited longitudinal element covering 12 months, by following respondents intensively over that period, acute periods of unemployment can be identified along with any return to work allowing an investigation of the characteristics of the individuals in such a situation. The survey also contains key outcome data in the form of income. The longitudinal Scottish sample equates to around 2000

households for any single 12 month period. With a sample of that size it is likely that some sub-group analysis would be possible.

A1.19 The Scottish School Leavers Study (SSLS) provides a key source of information on the employment and economic activity of young people in Scotland. This is widely recognised as an important transitional period for young people and is one which can influence later employment patterns and economic activity. With four waves of data collection covering an eight year period, SSLS presents a fairly comprehensive dataset allowing the investigation of employment, education and training trajectories over that time. However it is a postal survey and there are acknowledged difficulties in using it - as considered in the next section.

A1.20 Unlike the Labour Force Survey, or indeed, the Scottish School Leavers Study, the BHPS⁸ is not a study focussed specifically on education, employment or economic activity. However, employment information is a 'core' element of the study questionnaire, which means it is elicited at every sweep. The employment module collects information on economic activity and details of employment. As such it is valuable for investigating, in quite some detail, changes in individual employment patterns – length of time in different jobs, periods of unemployment, change of jobs, over a considerable period of time (up to 15 years of data are currently available for some cases stretching from 1991 to 2006). Furthermore, since the Scottish sample boost in 1999 there is a respectable sample size of around 3000 Scottish participants. The vast amount of additional contextual data collected routinely as part of this study mean that more detailed and complex modelling of particular labour market patterns, accounting for the impact of wider social factors, is possible with this dataset. Indeed, even the addition of a single question at one sweep – a possibility regularly offered by the design of BHPS - can then be used as an independent variable, opening up a range of policy relevant analytical possibilities. The same degree of detailed contextual information is not available, for example, in LFS or SSLS.

A1.21 The British birth cohort studies are also well placed for examination of issues relevant to this outcome. By providing life-course data from birth up to adulthood (amounting to 50 years worth of data for the 1958 cohort) these studies are particularly well-placed to describe individual trajectories, including those relating to economic activity. Indeed, data from the various cohorts has already been used to model such phenomena as patterns of female employment and patterns of return to work after childbearing⁹.

A1.22 A large number of other resources are useful for the evaluation of this outcome. To investigate such topics as demand for skills many of the business-related resources are key - particularly where employer and employee data can be linked. The Workplace Employee Relations Survey (WERS) is an extremely useful

⁸ The BHPS, now in its fifteenth year, will be absorbed by the new UKHLS with annual follow-ups of 7,500 Scottish individuals and first data available in 2009/10.

⁹ See, for example, Joshi, H. and Hinde, P. (1993) "Employment after Childbearing in Post-War Britain: Cohort-Study Evidence on Contrasts within and across Generations", *European Sociological Review*, vol.9, pp203-227; Dex, S. *et al* (1998) "Women's employment transitions around childbearing", *Oxford Bulletin of Economics and Statistics*, vol.60, No.1, pp.97-115

dataset for assessing progress against this outcome at the organisation level, although it is limited somewhat by the small Scottish sample. However, it does contain some useful data about organisational approaches to staff recruitment and training and on the demand for skills by employers. The Work and Pensions Longitudinal Study (WPLS), an administrative dataset created by merging data from the Department for Work and Pensions and HM Customs and Revenue, is a particularly important resource for determining progress on this outcome. For all those who are unemployed and in receipt of benefits, the dataset can provide significant data on periods of unemployment, and information on return to employment, job retention and jobcentre interventions. Furthermore, it is very useful for Scottish analysis, as with a 100% sample of DWP clients there is a large Scottish sample.

Gaps, obstacles and challenges

A1.23 The LFS is undoubtedly of some use longitudinally for exploring individual changes in labour market categories, and provides tremendous detail on employment characteristics as well as reasons for leaving jobs or not seeking work. But the relatively short time-span covered by the LFS longitudinal element means that there will be significant gaps in our knowledge where the point of return to work occurs after the last data collection. This renders LFS of less use for examination of the long-term unemployed. Whilst repeated cohort studies as the Scottish School Leavers Survey (SSLS) help fill the gap there are also significant limitations to SSLS data which restrict its use. In particular, the study suffered from considerable attrition between initial and final waves of data collection of each cohort, particularly among harder-to-reach groups, resulting in a heavily biased longitudinal sample over the 4 waves. With the most recent cohort, for example, only 21% of those included at the initial wave also responded at the final wave. Weighting of the data to restore of the original distribution can compensate for the biases to a certain extent. But the disproportionate scale of attrition of particular sub-groups, including those in the 'More Choices, More Chances' group (formerly NEET – not in education, employment or training) can mean that a key benefit of the data is lost in relation to this outcome.

A1.24 WPLS, with the ability to track individuals over the long-term, and by avoiding attrition problems suffered by panel studies such as SSLS presents a particularly appealing option. However, access to the dataset is extremely limited and it also lacks the detailed social contextual data that is collected by surveys, making it difficult, in a longitudinal sense, to develop from it in isolation from other data sources explanations for unemployment that are caused by, for example, health or familial factors. It would seem necessary therefore, to have some combination of survey and administrative data to permit a truly comprehensive understanding of the issues central to this outcome.

Research Exemplar

Dale-Olsen, H. () "Using linked Employer-Employee Data to Analyse Fringe Benefits Policies: Norwegian Experiences" in Bryson, A., Forth, J. and Barber, C. (Eds.) *Making Linked Employer-Employee Data Relevant to Policy*, DTI Occasional Paper No.4,

Over 50 per cent of firms in Norway offer fringe benefits as part of their compensation package for workers, but their incentives for doing so are not well understood. Using linked employer-employee data provided by Statistics Norway and surveys of managers, this paper investigates the relationship between fringe benefits, worker retention and firm performance. The findings indicate that fringe benefits can play an important role in human resource management, as workers' quit behaviour is very sensitive to their existence. Establishments also achieve higher productivity by offering more fringe benefits, although it is not clear whether this is due to workers making greater efforts, or to lower recruitment costs. Finally, firms with more generous benefits have higher survival rates than other establishments.

Economy summary

A1.25 Demonstrating progress against the 'economic' outcomes requires large amounts of data and complex, multi-level analytical techniques. This is because of the multitude of factors which impact on the success or otherwise of the economic process. Thus to model effectively the processes leading to outcomes in this domain requires not only data on the business environment and the businesses within it, but also the people in that environment and the wider social infrastructure that supports it. Assimilating this information does not make for an easy task but it is important that these multiple levels of data can be linked.

A1.26 The value in, and necessity of, in particular, linking employer and employee data is clear and much work is already underway in this area. Indeed, there is a considerable amount of data generally available on business, the economy, and economic activity in Scotland to permit longitudinal analysis across different levels. The IDBR is a powerful source of business data, the Labour Force Survey and the WPLS are equally robust for examining individual-level factors - all are capable of supporting in-depth Scottish analysis. In addition, the cohort studies present a unique opportunity to study patterns of long-term economic activity and the BHPS shorter term activity. A planned resource comprising individual data on transition from school to the labour market, based on careers guidance data will allow exploration of the special features of the Scottish post-16 education system. In summary, longitudinal data is useful for the evaluation of economic outcomes in a number of respects, particularly individual data that can be used to investigate the influences on patterns of economic activity. However, individual data offer only one part of the explanation and must be linked to, and be analysed with, business-level data to gain full understanding of the processes that contribute to achievement of this outcome. While it is can be challenging to work above the individual level, requiring the utilisation of large and complex datasets and multi-level analytical techniques, the focus of these outcomes necessitates it.

B EDUCATION

Outcome 3: We are better educated, more skilled and more successful, renowned for our research and innovation

Definition of key concepts

B1.1 Two objectives are straddled by this outcome; it is linked to both being 'smarter' and 'wealthier and fairer'. This, therefore, is a particularly broad ranging outcome encompassing education, lifelong learning, skills acquisition, employment, business and sustainable economic growth.

B1.2 Education levels, understandably, are almost exclusively measured using *attainment* data and there is a vast array of data sources which provide information on the attainment levels of the general population and specific sub-groups. Being 'better educated' would suggest returning, on average, higher attainment levels amongst the population generally. This would mean, overall, fewer people with no qualifications and more people with degree-level qualifications. The trend is already tracked and reported using repeat cross-sectional data. Better educated however, could also be related to the *supply* of education and *resources* available. This refers to education which is provided in better equipped schools, colleges and universities. It could further be interpreted as being more *appropriately* educated, that is being given the education necessary to succeed in the future with the right subjects and courses available and followed.

B1.3 Being skilled has a different meaning to being educated. *Skills for Scotland*¹⁰, the Scottish Government's lifelong learning strategy, defines skills broadly across a number of domains:

- **personal and learning skills** that enable individuals to become effective lifelong learners
- **literacy and numeracy**
- the five **core skills** of communication, numeracy, problem solving, information technology and working with others
- **employability skills** that prepare individuals for employment rather than for a specific occupation
- **essential skills** that include all of those above; and
- **vocational skills** that are specific to a particular occupation or sector

B1.4 Qualification levels, whilst not equated fully with skills, are considered one of the best proxies available, and so in some ways measuring a population that is 'more skilled' is similar, and will draw on many of the same sources and processes, as identifying a population which is 'better educated'. This causes obvious complications for the accurate evaluation of progress against this outcome. A further issue is then whether the confusion here between 'education' and 'skills' might in fact reflect the impossibility of drawing such a sharp distinction at all. In particular, there

¹⁰ *Ibid.*

is the question of whether employers seek recruits who are well-educated rather than specifically skilled, preferring to impart, at least for young recruits, the work related skills themselves. Qualifications are only one measure of skills; core skills including literacy and numeracy, and increasingly ICT competence, among the general population are also important as it is these skills which facilitate the subsequent achievement of qualifications.

Research exemplar

Bynner, J. (1997) 'Basic skills in adolescents' occupational preparation', *Career Development Quarterly*, 45: 305-321. Bynner, J., McIntosh, S., Vignoles, A., Dearden, L., Reed, H. and Van Reenen, J. (2001) *Improving adult basic skills: benefits to the individual and to society*, DfEE Research Report RR251, London: HMSO.

Analysis of basic skills data collected at age 21 in BCS70 and at age 37 in NCDS was directed at separating out the effects of poor literacy and poor numeracy over and above qualification level achieved on the amount of unemployment experienced since age 16. It was found that in NCDS an independent effect for numeracy could be established and in BCS70 for both numeracy and literacy with stronger relationships in the latter cohort study. This kind of evidence was used by the Moser committee in England to make the case for raising literacy and numeracy levels. The target set of 10% improvement was subsequently translated through further analysis into benefits to the taxpayer from achieving the target by 2012 of £2.54 billion for numeracy and £.44 billion for literacy. More recent BCS70 basics skills data collected in 2004 has recently been used in a special analysis for the Scottish Government published in 2008, *New light on Adult Literacy and Numeracy in Scotland*.

B1.5 'Success' is a less well defined term and could be understood in a number of ways. In this context however, it is predominantly concerned with success in education, training and the labour market. In these terms, 'more successful' would be associated with higher qualifications, more skills and stable, suitable employment. This may be measured, for example, through a reduction in the 'More Choices, More Chances' (formerly NEET) group. Success is also reflected in the greater proportion of high-skilled positions being filled by Scottish candidates, through attracting non-Scottish candidates to fill vacancies, or offering opportunities for Scottish candidates to gain good jobs outside Scotland. Success in the labour market could also be construed as relating to individuals securing higher incomes. From an organisational or business level (rather than individual/employee level), success is related to a thriving business and a vibrant economy, a theme closely linked to the concept of Scotland as a 'better place to do business' discussed earlier. Attracting more investment in Scotland would be a good sign of success, as would a higher, and more valuable, level of domestic product, a higher business start-up rate, and a high new business survival rate. A stronger demand by employers for skills, and a better use of skills in the production process, as highlighted in relation to the previous outcome, would also be a sign of 'success'.

Evaluating progress towards this outcome

B1.6 Determining properly progress against this outcome requires analysis of longitudinal data. Ultimately, the outcome variable suggested is that of being 'more successful'; the explanatory variables are 'better educated' and 'more skilled'. However, these latter concepts can also be considered as outcomes. Thus to achieve the status of 'better educated' or 'more skilled' requires an understanding of the processes and mechanisms which support individuals to achieve these outcomes. It also requires understanding of the demand for skills by employers, promoting which is at the heart of the new Scottish skills strategy.¹¹ Longitudinal research which can model the effects of individual inputs – via curriculum changes, quality of schools, classroom sizes, employment training opportunities or other elements – on achieving better educated individuals is thus necessary.

B1.7 Longitudinal data can attempt to explain why individuals within key sub-groups who consistently report lower qualifications, lower skills, more restricted access to further and higher education and less success in the labour market, achieve less and continue to do so as they move from childhood into adolescence and then into adulthood. Further, the data allows an understanding of the mechanisms that support individual improvement in this area, or the barriers that prevent improvement. Thus, it is clear that longitudinal data has a great deal to offer in terms of the evaluation of schemes such as the 'Curriculum for Excellence' and the 'Skills for Scotland' strategy. Longitudinal data is necessary to assess the impact of such schemes on the individuals whom they seek to benefit.

B1.8 For example, a well-designed longitudinal study which tracks the education and employment trajectories of multiple cohorts begun at different time points, can potentially be used to assess the relative impact of changes to careers guidance programmes for specific sub-groups. Comparison groups in different cohorts initiated before and after the introduction of the policies can be identified. If information representing the new policy is collected (e.g. data on number of careers interviews, or the availability or appraisal of careers literature) and comparable outcome data is available for both cohorts (e.g. securing full-time employment by a particular time point) the individual effect of the policy changes on achieving the outcome can be assessed. Results can then be compared with earlier cohorts who were not subject to the changes. However, it has to be recognised that it can be difficult to achieve successful, non-biased samples of groups that are characterised by low attainment, truancy and other risk factors.

Contribution of existing data

B1.9 Data from child cognitive assessments undertaken with very young children could be construed as relating to early measures of educational achievement or skills. Such data is available in the current cohort studies, including Growing Up in Scotland (GUS), and the Millennium Cohort Study (MCS). Data from each of these studies can provide an insight already into which children are best prepared, in terms of their cognitive ability, for success at pre-school and primary school at the point of entry. Longitudinal analysis can identify the independent effect of social or familial

¹¹ *Ibid.*

factors, or service use patterns collected earlier in the child's life (at 9-10 months for both studies, and 22 months for GUS) with later information (at age 3, 5 or 7 for example) on cognitive ability. Indeed, such analysis of Millennium Cohort data has already been undertaken¹². This analysis has explored the relative impact of different types of childcare at age 9 months on cognitive ability at age 3. Similar approaches are being applied in the evaluation of the introduction of pre-school provision for two-year olds in England and Wales with comparisons in development being made between those attending pre-school from age 2, and those not.

B1.10 The Scottish Survey of Achievement (SSA, formerly the Assessment of Achievement Programme) is the only national source of attainment information for Scottish children between the ages of 5-14. Although essentially a repeat cross-sectional study, the SSA is longitudinal at the level of school year group – e.g. the P3 year group sampled in 2005 will become the P5 year group sampled in 2007, the P7 year group in 2009 and the S2 year group in 2011. Whilst progress of individual children cannot be tracked, the progress of the year group overall is feasible. However, as noted earlier in the report, the SSA is currently under revision in order to reflect the Curriculum for Excellence and by 2010 the SSA will have been re-designed accordingly. Any opportunities for future longitudinal analysis would depend on the shape of the re-designed survey. Another approach, which we return to later, is to establish an Individual Pupil Record system on English lines. However, one important feature of the SSA, unlike the English system, is that it covers independent as well as public-sector schools.

B1.11 A number of other useful resources exist that focus on skills and education and their outcomes at older ages. Studies such as BHPS, NCDS, BCS70, and (potentially) UKHLS, by regularly updating information on educational qualifications, training and employment, provide useful resources for examining post-16 adult learning particularly to study the trajectories and outcomes of those groups who return to education at a later stage. The extensive additional contextual data available from such studies is particularly useful for modelling the wider benefits of learning in relation to health, economic and other outcomes. Also, time-series analysis of data from *different* cohorts permits a mapping of changes in the population and the processes they are undergoing. The only problem in relation to some of these studies is the small sample sizes within key sub-groups relevant for these types of analysis. The WPLS provides an extremely detailed resource for examining skills trajectories in particular of people undertaking government training schemes, whether they remain in those schemes and their success or otherwise in terms of securing employment at the end of the scheme. The LFS and the WERS provide some information on the demand for skills by employers.

Gaps, obstacles and challenges

B1.12 Longitudinal data able to support the exploration of this outcome is already widely available, and, as the exemplar demonstrates, relevant analysis has already been conducted on this data which demonstrates its usefulness. However, there is a key gap in the lack of easily accessible national attainment data for children who are following the 5-14 curriculum. Having Standard Grade results, achieved at age 15 or

¹² <http://e.g.openscotland.gov.uk/Publications/2007/12/18133613/3>

16, as the first available robust, national measure of educational attainment is arguably too late. The re-design of the SSA to reflect the Curriculum for Excellence, should offer further possibilities for the analysis of this outcome.

Outcome 4: Our young people are successful learners, confident individuals, effective contributors and responsible citizens

B1.13 This outcome entrenches the objectives and values of the 'Curriculum for Excellence' firmly within the national performance framework by explicitly referencing the four capacities (confident and so on) that the Curriculum is designed to help young people achieve. The Curriculum for Excellence (CfE) applies to all children and young people from their earliest contact with the education system through to the time they leave school as young adults. However, the CfE also recognises the importance of experiences beyond the formal educational environment including the family and community. Also, being a 'devolved initiative' it allows teachers and others involved in the process greater flexibility in deciding how it is delivered (and achieved).

B1.14 The CfE documentation defines specific attributes of each capacity in more detail. Successful learners' for example have "enthusiasm and motivation for learning; determination to reach high standards of achievement; and openness to new thinking and ideas"¹³. The statement continues by specifying key abilities of successful learners including literacy and numeracy skills, creative thinking, reasoned evaluation, and independent and group learning. Successful learning can be assessed at various ages and whilst the CfE is restricted to the experiences of children and young people aged 3-18 years, this is not necessarily the case for this outcome. Thus, evaluating 'learning' extends from assessments of cognitive ability in pre-school children to educational qualifications obtained at school, college or university. Indeed, going on to higher or further education after secondary school could be construed as a measure of successful learning.

B1.15 'Confident individuals' have "self respect, a sense of physical, mental and emotional well-being, secure values and beliefs, and ambition"¹⁴. In research terms, these abilities or feelings may be measured by asking young people about their perceived ability and belief in themselves, whether they feel in control of their lives, whether they have positive expectations and aspirations for the future, whether they participate in organised clubs or activities, how they feel about school, and their relationships with others (family, friends).

B1.16 'Effective contributors' are, amongst other things, able to "communicate in different ways and in different settings; work in partnership or in teams; take the initiative and lead."¹⁵ In practical terms, these attributes may be measured by involvement in team sports, organised clubs, or volunteering. On a wider scale, it could mean being in full-time education, training or employment after leaving school.

¹³ Scottish Executive (2004) *A Curriculum for Excellence – The Curriculum Review Group: Purposes and Principles for the Curriculum 3-18*

¹⁴ *Ibid.*

¹⁵ *Ibid.*

B1.17 'Responsible citizens' have "respect for others" and a "commitment to participate responsibly in political, economic, social and cultural life"¹⁶ This may be measured through law-abiding behaviour, respect for others, good attendance at school, concern for the community or environment. It would also include measures of volunteering and voting behaviour, or attitudes and apathy towards voting.

B1.18 Evaluating progress on this outcome thus requires information measuring the extent to which young people in Scotland are 'successful learners' or 'confident individuals' with analysis, which permits understanding of the diversity of educational inputs or social processes that lead them to reach that status. What elements of a young person's life most effectively contribute to him or her becoming a 'responsible citizen'? Or what barriers prevent young people from becoming 'successful learners'? The answers to these questions will provide the necessary evidence to support policies which are designed to achieve this outcome.

B1.19 Analysis for this outcome requires data sources which provide information allowing the evaluation of progress against one or more of the defined capacities. This information may thus be educational qualifications, individual self-esteem, or involvement in criminal behaviour for example. In addition, the data sources must also contain a range of explanatory variables such as those relating to home and family life or experiences at school which can be used to isolate the factors most effective in helping young people to achieve the capacities. Longitudinal data is especially important to the achievement of this outcome. This is because as policy increasingly moves away from traditional educational goals it becomes harder to identify useful interventions. Longitudinal research thus becomes very informative in discovering how these outcomes are ultimately achieved and in identifying the interventions which helped their achievement

Contribution of existing data

B1.20 The evaluation of this outcome in relation to younger children can be achieved through use of the birth cohorts. Both Growing Up in Scotland and the Millennium Cohort Study provide recent data on early child development, behaviour and cognitive ability, as well as a wide range of socio-economic contextual information. As prospective studies, they present important resources for tracking the status of individuals on potentially all four of the capacities, as they get older. However, the longer-running British cohort studies already contain data which is capable of examining these issues throughout the life-course and, crucially, include measures of 'success' and 'confidence' in adulthood (and other life stages) as well as a wide range of detailed contextual and outcome data.

B1.21 Data from the Scottish School Leavers Study (SSLS) permits analysis of young people reaching the end of their school careers and moving into employment or further education. However, as noted within the Economy section, there are significant limitations to the SSLS data, including the high levels of attrition among hard to reach groups. This restricts its use for investigating such target groups as the

¹⁶ *Ibid.*

More Choices More Chances group¹⁷. Areas of potential for longitudinal analysis may involve relating the individual's experience during the school 4th year - measured via qualifications already obtained, attitudes to school, level of parental support, and home and family situation - to their achievement of becoming a 'successful learner' defined through data on qualifications obtained at later school years or whether they are going on to higher education. Factors related to having high or low aspirations and high or low levels of control and what affects change in these over time could also be investigated.

B1.22 The Edinburgh Study of Youth Transitions and Crime (ESYTC) also collect educational information related to attainment, attendance at school and attitudes towards school. However, with measures of self-esteem, impulsivity, alienation, alongside data on aspirations, friendships, relationship with parents it is particularly well-placed to investigate issues related to confidence. Repeat measures of these aspects at different time-points allow the identification of individuals whose status has changed overtime – either positively or negatively – and analysis of the drivers of that change. In addition, with data on school attendance, youth offending and interactions with the criminal justice system the study could also be useful in modelling the 'responsible citizens' aspect of the outcome.

Gaps, obstacles and challenges

B1.23 Due to the current status of the SSLS and ESYTC , which are currently 'inactive' with no guaranteed plans for future data collection, there are no opportunities for prospective analysis.¹⁸ For example, without a further round of data collection on the Edinburgh Study the examination of the impact of the various, and detailed, measures of adolescent life on outcomes in early adulthood is impossible. It is notable that there is no current prospective longitudinal youth cohort study currently being undertaken in Scotland. The proposed alternative to the SSLS is to provide linkage to Careers administrative data, in order to allow the destination of school leavers to be tracked. This offers the possibility of linking to other sources including longitudinal surveys. Also important is contextual data on the social lives of young people in order to explore the impact of experiences beyond the formal educational environment, which are central to the Curriculum for Excellence. Furthermore, research data would also seem necessary to explore proper the conditions encompassed by confident individuals, effective contributors and responsible citizens.

¹⁷ The focus of Scottish Government work is to develop the collection, sharing and use of administrative data. This will be the source of data for the National Indicator, will support interventions by partners engaged in the More Choices More Chances agenda, and enable common high quality data to be used across partners – who in addition, may wish to place it alongside other more qualitative material.

¹⁸ A sample safeguarding exercise was conducted in 2007 to re-contact the cohort and inform the methodological development of any future phases of the survey. The report is available from the study team on request at <http://www.law.ed.ac.uk/cls/esytc/findings/technical.htm>. For more details see the project summary in Appendix 3

Outcome 5: Our children have the best start in life and are ready to succeed

Definition of key concepts

B1.24 Best start in life involves both a clarification of what is meant by ‘best start’ and the identification of outcomes later in life as operationalised by salient indicators that can be used to validate the hypothesis implicit in it.

B1.25 Within the Spending Review, this outcome is linked only explicitly to the ‘smarter’ objective. However, it would seem relevant also to consider it in relation to the ‘healthier’ objective particularly, as the resource review illustrates, a large portion of the information available on very young children in Scotland is health-related, and many of the existing British birth cohort studies were established specifically to examine ‘perinatal’ issues related to maternal or early child health.

B1.26 Although most obviously the ‘start’ referred to would be the child’s birth, to assess fully this outcome requires data spanning the early periods of children’s lives from their conception to their initial years at primary school. Within this period, a number of significant starts, in addition to the birth, are evident – starting pre-school or primary school for example. Thus, to be of use to this outcome, the longitudinal resource must provide some information on one or more of these periods – pregnancy, birth and very early childhood, pre-school, early primary school - for any individual subject. In many cases, such as in the birth cohort studies, this data is collected concurrently – whilst the mother is pregnant and/or when the child is very young – but information about the ante-natal period, the time of birth, and early childhood can also include historical data recalled by the respondent and/or administrative data from health records.

B1.27 Much of the administrative information already collected on children and their parents from the child’s birth, and indeed during the pregnancy, has a specific health focus and is often reported in relation to implications for the future health of the child. During pregnancy this may include maternal smoking, drinking or drug use; at birth, birth weight and feeding choices; and in the early weeks information covering the child’s physical and cognitive development, and maternal physical and mental health. Through the early years, in relation to a ‘healthy’ start, this may expand to include measures of the child’s contraction of acute and long-standing illness, their height and weight, physical activity, diet, cognitive development, behaviour and exposure to chemicals in the home (cigarette smoke would be the most obvious example). However, having the best start is not restricted to health-related indicators, and is in fact unavoidably linked to indicators measuring the social and familial context into which the child is born. These may include family and household composition, household income, housing tenure and state of accommodation, neighbourhood deprivation and resources in the community, access to services and sources of support, and a myriad of other factors which contribute to a positive child-rearing environment.

B1.28 Success, in relation to this outcome, can be understood most easily in relation to education and learning. Detail in the previous outcome illustrated the meaning of

'successful learners' in relation to the Curriculum for Excellence. It follows from this that being 'ready to succeed' requires having been exposed to the experiences and environments necessary to facilitate the development of the enthusiasm, motivation, determination, openness and abilities necessary to succeed in learning. These may include many of the home, family and social factors which have been described already in relation to the 'best start in life' but will also extend, in particular, to include the child's experience of pre-school education.

Evaluating progress towards this outcome

B1.29 The theme of 'early intervention' is central to this outcome. Given that the entire principle of early intervention is based on a longitudinal approach – altering situations at an early stage to impact on later outcomes – access to longitudinal data is essential to assess properly progress against it. The existing knowledge of the benefits of early intervention, and specification of early interventions, has been made possible through analysis of existing longitudinal data. It is only through analysis of the early circumstances and characteristics of children alongside their later positive outcomes that the precise health, social, familial, and community factors that create the 'best start in life' and children who are 'ready to succeed' can be determined. Furthermore, only longitudinal data will allow any appraisal of the success, or otherwise, of any early intervention which aims to contribute to a larger number of children experiencing the 'best start in life', by following those children and collecting information about their outcomes in later life.

Contribution of existing data

B1.30 Growing Up in Scotland, with its unique Scottish focus and intensive collection of data on the early years' period, is very well placed as a resource with which to assess progress against this outcome. Already, the study has three years worth of longitudinal data across two cohorts covering transitions from age 10 months to 34 (just under 3 years) months, and 34 months to 58 months (just under 5 years). With information available about the child's birth and the period immediately after birth, along with data from cognitive assessments at age 3, it can support analysis of the effects of the very early circumstances and experience on children's readiness to succeed.

B1.31 A considerable amount of historical data, covering a range of child cohorts and including children living in Scotland, is already available which could be analysed to formulate a picture of what particular circumstances offer children the 'best start in life'. Most notable amongst these are the British birth cohort studies of 1958 and 1970, but the Aberdeen cohort study and the National Study of Health and Growth are also relevant. Although based around a one-off cross-sectional survey of almost 15,000 primary school pupils in 1960-62, the Aberdeen study represents a good example of how linkage to information held on administrative records can be used efficiently to generate a 'longitudinal' dataset.

B1.32 The study combines information from the original survey with administrative data about the pregnancy and birth - from the Aberdeen Maternal and Neo-natal Databank - the child's height and weight at primary school entry - from school medical records - and cognitive ability at ages 7, 9, 11 – also from school records.

More recently, this early data has been supplemented with data from a postal survey of surviving and traceable respondents, and various health and socio-economic data on cohort members available from centralised National Health Service databases. Thus, despite having collected data from cohort members themselves only twice, through data-linkage the Aberdeen study has constructed a detailed life-course dataset. With information about the pregnancy, birth, and the socio-economic characteristics into which the child was born, the data can be used to examine, historically, the impact of these very early factors on later success defined by results in the cognitive tests at ages 7, 9 and 11. Almost all of the other cohort studies undertaken have collected similar types of data (for example, GUS, MCS, NCDS, and BCS70 all draw on data about the birth taken from health records) allowing a powerful analysis of which factors have endured overtime as affecting a child's readiness to succeed. This comparative option would also permit an understanding of the generalisability of the Aberdeen data, being based on children from a specific locality, to children in Scotland as a whole and possibly beyond.

Research Exemplar

Feinstein, L. (2003), "Inequality in the Early Cognitive Development of British Children in the 1970 Cohort", *Economica*, 70: 73-97.

This research developed an index of development for British children in the 1970 cohort, assessed at 22 months, 42 months, 5 years and 10 years. The score at 22 months predicts educational qualifications at age 26 and is related to family background. The children of educated or wealthy parents who scored poorly in the early tests had a tendency to catch up, whereas children of worse-off parents who scored poorly were extremely unlikely to catch up and are shown to be an at-risk group. There is no evidence that entry into schooling reverses this pattern.

Gaps, obstacles and challenges

B1.33 A host of robust and relevant longitudinal data is readily available for use to address the issues at the heart of this outcome, particularly through the various birth cohort studies. As these studies continue, so does the value and potential contribution of their data. It is important therefore, to ensure that support for these studies is continued, and that the opportunities presented by the available data are exploited through secondary analysis.

Education summary

B1.34 The previous analysis has demonstrated the enormous contribution that longitudinal data and analysis can make to evaluation in this policy area. Each of these outcomes are primed for testing using individual-level, longitudinal, life course data, and there is a wealth of resources available which permit this. Britain has an unrivalled history in the establishment of national birth cohort studies for scientific investigations of developmental processes and their outcomes throughout life in social, educational, economic, psychological and health domains. Indeed, there is little room for expansion as there exist already multiple, high quality, longitudinal resources appropriate to the task. There are numerous opportunities for single

cohort or multi-cohort analysis using historical data, via the longer established cohort studies, or the more recent information available via the Millennium Cohort Study or Growing Up in Scotland.

B1.35 Rather than investment in new studies, longitudinal evaluation of the outcomes in this domain requires continued, and increased, investment in existing resources which will see them reach their full potential and allow, through secondary analysis, the data available to be fully exploited. There is some evidence that existing studies could be easily be enhanced through linkage to administrative datasets or other survey data.

C HEALTH

Outcome 6: We live longer, healthier lives

Definition of key concepts

C1.1 This outcome is quite obviously related to the 'healthier' objective. Achieving progress against this outcome in Scotland is very much associated with success in bringing about significant change in the habits and lifestyles of the Scottish population. Scotland has a reputation internationally for poor health, particularly in relation to health-related lifestyle choices such as diet, smoking, and alcohol consumption and the subsequent impacts these have on incidence of disease and illness. Without longitudinal data, the extent to which any change has been realised at an individual level cannot be properly appreciated or assessed.

C1.2 Whilst there is little to debate on the measurement of 'longer' lives, measuring 'healthier' lives does require some unpacking of the term. Health is a broad concept encompassing a wide range of fields – medicine, public health, physical health, mental health, general health, illness, disease, disability, and health-related behaviours or lifestyle choices are some examples. Within most of these fields, whilst information on the general population is important, separate study of discrete sub-groups is also warranted – children, adolescents, mothers, the elderly, the disadvantaged, men, women, smokers or drinkers for example. Thus, to contribute to the evaluation of this outcome, a suitable resource must collect health-related information from one or more of these domains on the general population at large or a sub-group of key interest. Note that it is unlikely any single resource could encompass all of these features.

Evaluating progress towards this outcome

C1.3 A vast amount of research and administrative health-related data is collected, analysed and published in Scotland, on the Scottish population, on a regular basis. This data is largely cross-sectional, or at least it is analysed and reported in a cross-sectional manner, to provide 'monitoring' and trend information and useful comparisons to other UK and international administrations. This data allows broad analysis of changes in health-related characteristics over time which is useful but also limited in that it only allows change to be measured at a population or sub-population level. There is no indication of the extent of individual change. For example, Scottish Health survey data indicates that the prevalence of smoking in adults aged 16-64 decreased from 35% in 1998 to 31% in 2003. However, without individual level information it is impossible to deduce where, or why, this reduction has occurred – is it because fewer people are taking up smoking? Or have people who smoked in 1998 stopped smoking by 2003? If the latter is true, what are the characteristics of those who have stopped and why have they stopped? Similarly, what are the characteristics of those who continue to smoke, what are the barriers to quitting and what are the implications of their continuing habit? This is the additional and invaluable data which is the added benefit of longitudinal information – it permits a more thorough understanding of the complex reasons of why things happen which leads to a more informed policy development and evaluation process.

C1.4 As well as allowing a more detailed understanding of individual health careers, longitudinal data also permits study of the impact of socio-economic, demographic, health and countless other factors on later health and other outcomes. Current policy programmes to promote intensively breastfeeding, for example, are built on longitudinal data that has demonstrated the long-term benefits of this practice on reducing the risk, amongst babies, of a range of illnesses. These include gastro-intestinal infection and respiratory infection, and amongst mothers of breast and ovarian cancer.

Contribution of existing data

C1.5 Almost all of the longitudinal resources considered in the context of this review include some measures of health. Many of the resources offer data on specific health concerns, or on the health of a particular sub-group such as children or young people.

C1.6 Of these numerous sources the Scottish Longitudinal Study (SLS) is particularly suited to a range of analysis which tracks differences both in how long people live, and in their health-status. SLS is a large-scale census-based study created by linking census data to data available from current Scottish administrative and statistical sources. With a 5% representative sample of the population, equating to data on around 274,000 people living in Scotland, this dataset represents a powerful resource capable of modelling health variations and inequalities amongst or across key sub-groups on the basis of age, gender, area or other socio-demographic, geographic, or health-related characteristics over time. Indeed, the study is already used widely for this purpose. Current health-focussed projects using SLS data include an exploration of individuals who return to work after being off long-term sick and the impact of returning to work on their health. Other examples include examination of the relationship between health and housing, social mobility, and the effect of exposure to air pollution on likelihood of death, hospitalisation, cancer registration and negative birth outcomes. Of course there are many other opportunities presented by this dataset for policy-related longitudinal health research that have yet to be exploited. The continued expansion of this study through the linkage to historical data or additional contemporary datasets, covering additional health information or extra socio-economic contextual details, mean that its potential continues to grow.

C1.7 Having been established specifically to investigate factors related to maternal and early child health, and through continuing to collect data on illness, physical condition and health-related behaviour, the British birth cohort studies are particularly well-placed for exploration of health issues throughout the life-course. NCDS (the 1958 cohort) for example, was originally designed to examine obstetric factors associated with stillbirth and death in early infancy. As such it collected detailed information about the pregnancy and birth, including lifestyle data such as whether the mother smoked during pregnancy. At subsequent follow-ups, data on the child's health and medical history, including incidence of specific illnesses, was collected. In adulthood, the study has continued the collection of data about illness, accidents medicines taken and hospital visits alongside information on drinking, smoking, diet, drug use, depression and fertility. The study has also included a biomedical component, undertaken in 2002, where blood samples and a range of biometric data

were collected from cohort members. This survey aimed to obtain objective measures of ill-health and biomedical risk factors. BCS (the 1970 cohort) contains similarly detailed data.

C1.8 Considerable use has already been made of health data from the older cohort studies to explore, for example, the effect of smoking during pregnancy on child health and health inequalities by socio-economic classification. More recently, data from the Millennium Cohort Study has looked in detail at issues surrounding breast-feeding initiation and duration.

C1.9 Perhaps the most comprehensive longitudinal dataset for the study of health-related outcomes in Scotland is that of the West of Scotland Twenty-07 study. Starting in 1987 and covering three age cohorts (aged 15, 35, and 55 at that time) of residents in the West of Scotland, this study has collected detailed health information covering 20 years of the lives of its sample members. As well as self-reported measures of health, physiological data, such as height and weight and health-related lifestyle information, the study has collected biological samples to allow more specific analysis of particular medical disorders. With 1000 people in each cohort, and with the same information on each, the relative importance of key influences on health outcomes at different stages of life can be assessed. For example, does diet impact more acutely on the health of the middle-aged than on those in early adulthood? The ability to examine how health patterns and the impact of lifestyle and socio-economic characteristics differ by age, and how they change for people of different ages as they get older, is a key strength of this study. A further key strength is the focus on the effects of neighbourhood on health. “Go Well Glasgow” is also valuable in focusing on the relationship between housing and health.

Gaps, obstacles and challenges

C1.10 Whilst fairly comprehensive, there are some limitations presented by the available data. The main limitation of SLS, as a resource for studying health, is particularly in relation to socio-economic characteristics. Census data is collected only every 10 years, which means socio-economic changes in the short term (shorter periods of economic inactivity for example) are not detected and cannot be examined in relation to health outcomes. Furthermore, by not collecting primary data directly from the subjects themselves, limited information is available on healthy lifestyles – drinking, smoking and diet – which are key policy priorities in this area. This is a case where linked administrative data could not only help bridge the gap but hugely enhance the research potential of the study. Plans are already in place to link educational attainment information from the SQA into the SLS dataset and there is a strong case for also incorporating local authority care data.

C1.11 The only significant limitation of the Twenty-07 study is that, by definition, it is area-based – only covering the population of the West of Scotland, and, for the locality study, specific neighbourhoods of Glasgow. As a result, care must be taken in generalising findings from Twenty-07 data to the Scottish population as a whole.

Research Exemplar

Ebrahimi-Mameghani, M., Scott, J.A., Der, G., Lean, M.E.J., and Burns, C.M. (2007) "Changes in weight and waist circumference over 9 years in a Scottish population"
European Journal of Clinical Nutrition, advance online publication 11 July 2007

The number of people who are obese and overweight in Scotland has increased significantly over the last two decades increasing the risk of associated conditions such as diabetes, heart disease, cancers and stroke. Developing effective strategies to prevent weight gain and promote weight maintenance is therefore a major public health priority.

This study aimed to monitor patterns of measured weight, changes in waistlines and the increase in overweight and obesity over a 9-year period. It was focussed on the two older age cohorts from the Twenty-07 Study (aged either 39 or 59 in 1991) and measured their height, waist circumference and weight at three separate intervals 1991, 1995 and 2000. We also looked at changes in body mass index (BMI), over time.

Only one in five (20%) people maintained a stable weight over 9 years. However, more than 42% of study participants put on 10kg, and 17% gained 5kg. We found that people in early middle age seem to put on more weight, more quickly than older people. But the waistlines of the older group seem to be bigger than those in early middle age.

Health summary

C1.12 Health is another area where longitudinal data and analysis is tremendously useful. The importance of establishing 'cause' and 'effect' is perhaps most obvious here particularly when the effect is a positive health outcome related for example, to lower incidence of illness or disease. Also, like education, health is a policy area where a significant amount of useful longitudinal data is already available. Resources of particular salience include the British birth cohort studies, each of which were originally established around the investigation of health-related topics, the Scottish Longitudinal Study, which offers a powerful resource for Scottish analysis, and the West of Scotland Twenty-07 study, which with three adult cohorts of different ages and a wealth of health-related data, along with considerable amounts of social contextual information on respondents, is a rich data source and Go Well Glasgow is also a valuable addition.

C1.13 Survey content is particularly important for investigations in this area. Scotland's health suffers particularly as a result of risky lifestyle behaviours – poor diet, excess alcohol consumption, cigarette smoking and lack of physical activity. The most useful longitudinal datasets therefore, are those which contain information on patterns of these behaviours amongst the Scottish population, as well as data on health complaints, illness and disease. There are also huge advantages to be gained in this domain, by linking survey datasets to routinely collected, administrative health data. Linking vast amounts of health information is not a new concept in Scotland. Since the late 1980s, the Information Services Division of NHS Scotland has been pioneering systems to achieve this using routine hospital admission data and hold two main linked datasets centrally, routinely updated with new and high quality information. The value of such data for research purposes is demonstrated clearly by the Scottish Longitudinal Study, and by the Aberdeen Study. The concerns arising over the ageing of the Scottish population, and the implications for policy directed at the elderly, are not currently capable of longitudinal investigation in Scotland as there is no longitudinal study of ageing. A key focus of ELSA, the

English Longitudinal Study of Ageing, is health and while much can be learned from that data, there is a strong argument for establishing a comparable Scottish study.

D PROTECTION

Outcome 8: We have improved the life chances for children, young people and families at risk

Definition of key concepts

D1.1 A significant amount of research has been dedicated to the study of children, young people and families at risk. This research has demonstrated that these groups experience a disproportionate level of challenges in many areas of daily life making it harder for them to succeed. This outcome recognises the necessity for interventions focussed at improving the prospects of the children, young people and families within this group.

D1.2 The extent to which the 'life chances' of an individual or family has improved can be modelled through a range of indicators. These may include reduced exposure to disadvantage through better employment and greater wealth, securing good housing, and living in safe and secure neighbourhoods with access to good quality services and support. The strategy extends to education with better and more stable educational experiences, raising expectations and aspirations, and achievement of good and suitable educational qualifications. In the realm of the family this outcome supports a stable and successful family life with good familial relationships and strong social networks. Health is also relevant and improving life chances would mean lowering the risk of illness and disease, and exposure to unhealthy lifestyles to ensure healthier, longer lives.

D1.3 Families at risk can be identified according to different definitions referring to broad disadvantage and the risk it presents or the dangers represented by exposure to specific circumstances or lifestyles. Families at risk may include lone parents, younger parents, those living in deprived areas, families with unemployed parents, or parents with minimal education. Children and young people at risk could involve those neglected or abused, or those in contact with formal agencies such as the police, social work department or the Children's Reporter. There are risks defined by health status including risk of illness or disease, obesity or death (lower than average life expectancy), obesity. Some risks may be defined in relation to school or education and involve truancy, exclusion or poor school performance. Existing research has shown that usually more than one of these risk factors is present. For example, children in disadvantaged families may be at higher risk of school truancy, poorer educational attainment, poorer diet and health, coming into contact with formal agencies, involvement in delinquent acts, and having a less-stable family life.

Evaluating progress towards this outcome

D1.4 To assess the success of interventions designed to benefit families thus defined, and, indeed, to understand what form such interventions should take to be most effective, requires the application of prospective longitudinal research and analysis of historical longitudinal data. Measuring the relative 'improvement' of life chances for individuals or families, and the impact of interventions designed to produce those improvements, can be properly achieved only via prospective

longitudinal research. The analysis of historical data can be used to identify 'risk factors' which lead to negative outcomes, or limited life chances, according to a range of definitions. Historical data can also be used, however, to identify factors associated with resilience amongst families at risk. Such evidence is important for the delivery of appropriate interventions.

D1.5 To measure progress towards this outcome, the data must offer variables which allow the identification of children, young people and families at risk, through one or more of the definitions, but also some measure of whether the 'life chances' of those children, young people or families have improved (outcome variable). Furthermore, there must also be some coverage, within the data, of explanatory factors which may have contributed to any observed change (or lack of change) in those life chances.

Contribution of existing data

D1.6 A number of longitudinal resources exist for the study young children and families 'at risk' including Growing Up in Scotland (GUS) and the Millennium Cohort Study. Both studies can facilitate an understanding of the impact on a child's life of being born into families at risk, whilst GUS can also provide particular detail on the circumstances and experiences in the 'early years' (0-5 years) period, and how these early years experience impact on later outcomes. The comprehensive and detailed datasets in each of these studies allow identification of risk on a number of levels, household, individual (both parent and child), and area – and through a range of risk definitions:

- low income
- lack of employment
- family composition (lone parent, number of children)
- parental age (younger mothers)
- housing and accommodation (social housing, low person-to-room ratio)
- child health and well-being (birth weight, long-standing illness and disabilities overweight and obesity)
- parental health and well-being (general health, limiting illness, smoking, depression, mental well-being)
- parental alcohol and drug use and area deprivation

D1.7 While it has a significantly smaller Scottish sample size, the Families and Children Study still offers a functional resource to study 'at risk' families with children of a broader age range (at least 0-16 years, up to 18 years if child is in full-time education). The inclusion of older children facilitates examination of a broader range of risk elements – in relation to primary and secondary schooling for example. Sampling procedures introduced from wave 9 (2007) mean that families within certain at risk groups are given priority in the subsequent follow-up, boosting their numbers and making study of these families easier. The UK-wide coverage of the sample offers also useful comparative opportunities.

D1.8 Two Scottish area-based studies of adolescents, the West of Scotland 11-16 Study and the Edinburgh Study of Youth Transitions and Crime (ESYTC), provide further opportunities to identify young people at risk and track their progress through

the teenage years, and beyond. The Edinburgh Study, through its linked Social Work, Children Hearing's and Police data, in particular, allows identification of young people known to formal agencies i.e. those who are often most vulnerable. The study's focus on delinquent behaviour makes it a rich source for the study of persistent young offenders. The large sample size for the study, high response rates, and linked data from official records in the Edinburgh Study allow it to be used for a significant range of analysis in relation to young people at risk. Historic data from administrative records, in particular, means that the trajectories of the young people identified as 'at risk' in early childhood can be tracked into adolescence. Furthermore, the most recent collection of administrative data from the Scottish Criminal Records Office, has allowed the mapping of trajectories, for a limited section of the cohort, to be continued into early adulthood. The focus of the West of Scotland study is more on health-related risk including chronic illness, height and weight, and substance use. This detailed health information, which extended to include data on self-esteem, self-image, health behaviours, school and family life, was collected from cohort members at ages 11, 13 and 15. Subsequent follow-ups were then made at age 18-20 and age 22. Data from this study is therefore well suited to the examination of health risk-factors during adolescence and through the transition to early adulthood.

Gaps, obstacles and challenges

D1.9 With a number of suitable studies in progress providing relevant longitudinal data on children and families and permitting definition of 'at risk' in various forms, there is little need for new information to support evaluation of this outcome. However, many of the characteristics of families 'at risk' correspond with the characteristics of those who are most likely to drop-out or be lost to panel and cohort studies. A key challenge, therefore, is in retaining such families in cohort and panel studies over the long term so that their outcomes can be tracked.

D1.10 Retention of 'at risk' families needs to be set against standard procedures for boosting response and minimising attrition in longitudinal surveys. These methods are numerous and include providing good survey information to respondents, making participants feel valued, offering reassurance of confidentiality and professional conduct, minimising 'respondent burden' by keeping data collection procedures as short, unintrusive and simple as possible and keeping in regular contact. Use of financial incentives to encourage participation is uncommon in UK longitudinal surveys although they are a feature of many other UK social surveys and on longitudinal projects conducted elsewhere. Furthermore, in the context of the latter a financial incentive appears to have benefits for sample retention, especially for those sub-groups most difficult to retain. For example, the Fragile Families study - a longitudinal project following a cohort of nearly 5000 children born in 20 large cities in the US and including an over-sample of non-marital births (and thus families at greater risk of parental separation and of living in poverty) - paid respondents between \$20 and \$50 for each interview undertaken over the five years of the project. Eighty-seven percent of mothers who were unmarried at the child's birth and who were interviewed at baseline participated in the five-year follow-up, representing an impressive response rate for a study of this kind. In a climate of falling response rates more generally, it is now becoming increasingly common for UK social surveys to give small financial incentives to respondents to encourage co-operation. This is

an option which may have to be seriously considered for any longitudinal study, such as GUS, for example which hopes to retain enough of the families and children to whom this outcome relates,

Outcome 9: We live our lives safe from crime, disorder and danger
--

Definition of key concepts

D1.11 This outcome stems directly from the 'safer and stronger' objective, the only objective to which it is explicitly linked in the Spending Review. It is focussed, clearly, on preventing crime, much of which is the concern of the criminal justice system. However, crime prevention is not only about having effective justice systems which deal swiftly with offenders but is also about identification of the risk factors which lead people to commit crime and reducing that risk through policies and interventions in the realms of education, employment, welfare and health. Thus, achieving progress against other outcomes – reducing inequalities, giving children a better start in life, realising our full economic potential, improving the life chances for children, young people and families at risk – will produce, as a result, progress against this outcome. As such, the outcome is implicitly linked to a number of policy areas and across several objectives beyond 'safer and stronger'.

D1.12 Crime is defined by statute and requires little further interpretation, although some interpretation is applied in how it is recorded. Defining disorder is less straightforward as it encompasses the type of low-level, 'nuisance' behaviour that is often not explicitly criminalised in terms of the law but is now described as 'anti-social behaviour'. The inclusion of 'danger' as a concept extends the coverage of this outcome to include the risk of accidents – in the home or on the road, for example – or, perhaps, of natural disasters – floods being the most obvious, and the most recently occurring example of this in Scotland.

Evaluating progress towards this outcome

D1.13 To assess performance against this outcome therefore requires information on levels of crime, disorder and danger and how these vary across individuals and communities. A large amount of data, mostly cross-sectional, is available on levels of crime and on the administration criminal justice system from a range of sources. Administrative data includes police recorded crimes, court statistics and prison statistics. Data is also collected from victims of crime and from offenders.

D1.14 A society that is safer from crime, disorder and danger is a society that experiences lower prevalence of these events. One part of reducing crime and disorder is preventing it in the first place. However, this requires detailed understanding of the factors which contribute to an individual's involvement in offending. These may be socio-economic, family, area, lifestyle, peer group, psychological or attitudinal attributes. Longitudinal studies that collect information about involvement in offending can provide data on the point at which offending starts, its patterns over time (for example whether offending behaviour increases or decreases, when, why and for whom?) changes in offences committed (in terms of seriousness or nature) and when it stops. This allows analysis of factors related to each element of offending – what contributes to onset of offending? What causes it

to become more serious? And what assists with desistance from crime? Furthermore, only longitudinal research permits proper, long-term evaluation of the effectiveness of criminal justice processes and interventions designed to reduce (re-)offending. Also, by building intervention evaluation into a wider longitudinal study of offending, longitudinal research has the added benefit of allowing the monitoring of other changes in the circumstances of the respondent – circumstances which may be beyond the remit of the intervention, or which have unintentionally changed as a result of the intervention – and not just those related to involvement in criminal behaviour.

Contribution of existing data

D1.15 The Edinburgh Study of Youth Transitions and Crime is currently the only comprehensive longitudinal study of offending (and victimisation) in Scotland which is capable of this type of analysis. The detailed dataset collects information about involvement in a whole spectrum of delinquent behaviour from recognised statutory offences to risky behaviours. This is combined with a wide range of information on explanatory factors covering family life, school, peers, mental health, leisure pursuits, neighbourhood and experience as a victim of crime. Having this data spanning the six-year period of adolescence makes it an extremely useful resource for examination of the factors that motivate young people to become involved in delinquent behaviour, to resist involvement, to become more heavily involved or to reduce their offending over time. Thus, in the simplest terms, offending behaviour at age 16 can be linked to individual characteristics and circumstances recorded at ages 12 to 15. Indeed, a range of analysis has already been undertaken on data from the study to do this.

D1.16 The Edinburgh Study has additional elements beyond the survey data that increase its value as a resource for this type of exploration. Through painstaking linkage to administrative datasets held by the police, social work department and the children's hearings system, the study is particularly well placed to examine the impact of contact with these agencies and, where relevant, the formal interventions which followed. As such it offers an example of the type of long-term evaluation necessary to properly assess the effectiveness of interventions designed to reduce offending. The study also incorporates a strong ecological element – an important strand of criminological theory – collecting and linking in a large amount of data on the neighbourhoods and communities in which the cohort members live. This permits examination of the effect of area-level factors such as unemployment, migration, housing conditions and community cohesion on individual offending and also how changes in the area impact on changes in behaviour.

D1.17 The only other source of Scottish longitudinal data on offending behaviour lies with the proposed UKHLS. Current documentation on the content of the questionnaire indicates that questions on involvement in illicit and risky behaviour including crime, drug use and anti-social behaviour will be included although probably only for random sub-samples of the panel. As a household survey UKHLS is unlikely to capture serious and persistent offenders in the sample (unlike the Edinburgh Study) – i.e. those who are of key concern, and who present the biggest challenge for the government in demonstrating performance against this outcome. Nevertheless, the UKHLS sample will undoubtedly include many people involved in

lower-level offending and the extensive contextual data on the panel which is collected by the survey mean it will offer tremendous scope for examining factors which contribute to such offending behaviour amongst adults in the general population.

Gaps, obstacles and challenges

D1.18 Whilst a comprehensive and valuable resource, there are some limitations of the Edinburgh Study. By definition it is area-based, restricted to a cohort who attended school in Edinburgh at a particular time. Despite this, it is likely that findings from the study will be nationally relevant for a long time to come. In addition, the dataset thus far only contains data on the six-year period from 12-18 yrs. There is no information on childhood circumstances, on adult offending, nor the transition between adolescence and adulthood, nor between the youth and adult justice systems; although information on the latter elements would be collected should a further sweep of data collection be undertaken. Again further administrative data linkage might help fill the gap.

D1.19 There may be some benefits in replicating the Edinburgh Study approach on a national scale similar to the LSYPE, a cohort study based in English schools that began in 2003 of 13-14 year-olds and is now in its fourth year. A broadening of its coverage from the initial educational focus to other policy domains is expected as the survey proceeds through the later teens. Although absence of Scottish data is a major restriction the clear relevance of the survey's findings in relation to delinquent behaviour, truancy and so on have prompted interest in replicating the design in Scotland when a new English version is launched in 2012.

Research Exemplar

McAra, L. and McVie, S. (2007) *Criminal Justice Transitions*, ESYTC Research Digest No. 14

This research explored transitions into the adult criminal justice system amongst the young people in the Edinburgh Study cohort. It provides a description of patterns of criminal convictions and disposals for young people up to age 19, an examination of the characteristics and institutional histories of cohort members with a criminal record as compared with youngsters with no such record, and an exploration of the profile of young people who make the transition from the children's hearings system to the adult criminal justice system as compared with youngsters with a hearings record but who have not made this transition by age 19.

The analysis showed that more than half of those convicted had been known to the children's hearings system at some point previously and of those previously referred to the hearings system, 45% had a criminal conviction. The most important predictors of criminal record status were school exclusion by third year of secondary education; leaving school at age 16; early history of police warning/charges (by age 12); ever having an offence referral to the Reporter; ever being placed on supervision by the hearing system; persistent serious offending; and being male.

Protection summary

D1.20 Most issues surrounding protection lend themselves well to the application of longitudinal data and analysis particularly as these outcomes involve either changing the circumstances of individuals (such as moving children and family out of risky situations) or changing their behaviour (such as reducing re-offending). To

understand the processes which elicit change it is necessary to have longitudinal data. Again, this is an area where there already exists a number of relevant research resources and a wealth of longitudinal data is available – particularly on children, young people and families. The British cohort studies, by presenting life-course data from birth into middle-adulthood, already permit a range of analysis which can examine risk and resilience over time, at different periods of time, and across a range of key transitional stages. As the cohort members have aged, become parents and formed their own families, the studies have broadened their data collection to include outcomes for cohort members' own children, allowing examination of continuities and discontinuities in risk and/or resilience across the generations. However, the policy and social environments have changed since members of those cohorts were children and as such, the new cohort studies – MCS and GUS – as well as FACS, present fresh data to explore the current factors affecting the pathways of children at risk. The challenge here is retaining families in the sub-groups of interest within the samples for these studies. Experience has shown that those families 'at risk' are those families most likely to be lost to longitudinal panels, and least likely to participate in the first place. Without retaining these sub-groups the necessary data cannot be generated.

D1.21 Crime and justice present perhaps the most explicit examples of processes and interventions which are specifically designed to change individuals' behaviour – in this case, to discourage them from further offending. Proper evaluation of the effectiveness of these processes and interventions needs long-term data which monitors not only the behaviour, which is the focus of the intervention, but the wider circumstances of the subject, whether they change (either as result of the intervention or not) and how those circumstances and changes impact on behaviour and the success of the intervention. This type of evaluation is not currently a feature of the Scottish research portfolio.

D1.22 Although Scotland has only limited longitudinal data capable of supporting evaluation of the second outcome the Edinburgh Study represents a prime example of how such data should look. A wealth of administrative data has been collected on crime and the criminal justice process much of which was provided at the individual level – offences committed, contact with the police, court appearances and disposals, prison statistics, social work records, and referrals to the Children's Reporter. This information is not currently accessed or utilised for research purposes and its quality, e.g. court records is variable. However, it could in principle be used, for example, in the same way as health data in Scotland. The richness of the Edinburgh Study dataset demonstrates the value of such data in research terms. The Scottish Longitudinal Study, for example, would be greatly enhanced and a powerful resource in this domain, if information from the Scottish Criminal Records Office was linked to the existing dataset.

E COMMUNITY AND PUBLIC SERVICES

Outcome 10: We live in well-designed, sustainable places where we are able to access the amenities and services we need

Definition of key concepts

E1.1 Linked in the Spending Review to the objectives of ‘wealthier and fairer’, ‘safer and stronger’ and ‘greener’, this outcome recognises that the characteristics of the local neighbourhood, including the quality of local facilities, the spatial layout, its physical fabric and broader environmental factors, are of substantial importance in shaping individuals’ lives. To assess performance properly against this outcome requires not just objective information, which indicates whether or not a community is ‘well-designed’ or ‘sustainable’ according to agreed standards, but also information that demonstrates the wider benefits for the Scottish population to be gained by living in that community. These may be health benefits (such as improved recreational facilities leading to an increase in physical activity), economic benefits (better transport links leading to higher employment rates) or social benefits (mixed communities improving integration and cultural tolerance). What is required to evaluate performance against this outcome, therefore, is not only an understanding of what objectively defines ‘well-designed’ and sustainable communities (and, in opposition, what defines ‘poorly designed’ and unsustainable communities). We also need to know what defines *subjectively* ‘well-designed’ from the perspective of community residents, the processes that support the development of a community in reaching this goal and the impacts those community-level changes have on the people who live there.

E1.2 Existing research and analysis on communities already goes some way to providing definitions of ‘well-designed’ communities. These are communities which, for example, provide adequate housing stock that meets the current and future housing needs of existing and potential buyers and tenants. They are also communities supported by an adequate transport infrastructure that provides access to sustainable, affordable and good quality public transport. They are also communities that provide access to necessary services in education and health such as schools, nurseries and clinics, as well as other services necessary for the functioning of daily life.

E1.3 “Sustainable places support people in greener, more active lives” states the Spending Review¹⁹, and ‘sustainability’ could be considered a further feature of a well-designed community. It adds the ‘greener’ element to this outcome that can be measured through reference to environmental characteristics of a community such as local air quality, presence and accessibility of recycling facilities, making homes more energy efficient (through improving insulation or heating systems) or adopting new, greener technologies.

¹⁹ Op cit 40

Evaluating progress towards this outcome

E1.4 It is essential, for proper evaluation of this outcome, to consider responses from the community alongside administrative data that can provide details on the design and infrastructure of the community. To assess the state of Scotland's communities, therefore, requires:

- baseline data measuring community residents' access to, use of and appraisal of services,
- details of local housing and accommodation, including housing problems and quality of housing,
- the prevalence of 'sustainable' behaviours amongst residents - encompassing modes of travel and 'greener living', outdoor activity, car use and recycling
- information on their health and well-being, and on their socio-economic characteristics including their employment.

To further assess subjective aspects of the community requires information on residents' satisfaction with their neighbourhood and their perceptions of neighbourhood problems, social and cultural harmony locally, and their attitudes to, and opinions of, others who live around them.

E1.5 This baseline data would allow identification of those areas requiring intervention to improve their status in accordance with this outcome. With the use of longitudinal data the impact of community level change –the introduction of better designed and more sustainable places – via broad regeneration or smaller focussed changes, on individual outcomes and on outcomes for the area as a whole can then be assessed. Outcomes of such interventions can be assessed at both an individual level through, for example, improved health and well-being, lower unemployment, and greater neighbourhood satisfaction, and at neighbourhood level through reduced crime and anti-social behaviour, improved housing stock, and better community relations as measured by subjective indicators of community cohesion. Over time, those communities which most effectively engender positive change can be identified and the processes which have successfully realised that change can be applied elsewhere.

Contribution of existing data

E1.6 Existing historical longitudinal data can already be used to explore interaction between community level characteristics and individual outcomes to inform policy immediately. As may be expected, area-based studies are generally better placed for evaluation of performance against this outcome because they offer more in-depth data about the neighbourhood and community, as well as the characteristics of the individuals involved and often have particular ecologically-related aims and objectives.

E1.7 The West of Scotland Twenty-07 (WoS) study for example has collected information from cohort members on perceived accessibility to and satisfaction with various services - housing, transport, shopping, recreational facilities, and health services - their perceptions of anti-social problems – vandalism, litter, assault and disturbance from youths, traffic and nuisance from dogs – environmental problems

(pollution, burglaries, discarded syringes) fear of crime, neighbourliness and area reputation. This information is linked, for part of the study, with detailed descriptions of the environmental characteristics of the study localities including data on local service provision. WoS data spans twenty years from 1987 to 2007 and thus provides ample opportunity both for the longitudinal analysis of community change over that time, but also to explore the impacts of community interventions and regeneration efforts on later community-level and individual-level outcomes.

E1.8 One of the aims of Go Well Glasgow is “To describe and understand the changes taking place in communities in Glasgow as a result of housing improvement and community regeneration programmes which vary in terms of their size, scope, dimensions, policy focus, mechanisms and timing”. Thus this study is very much about attempting to create sustainable communities and measuring success in doing so. Although at its early stages, this study presents considerable potential as a resource for the evaluation of this outcome, or at least for analysis that will support policy to improve performance against this outcome.

E1.9 Many of the other longitudinal studies considered collect information on community and neighbourhood. SHARP includes before and after measures of neighbourhood satisfaction, as well as assessment of neighbourhood problems related to anti-social behaviour, service provision, and environmental qualities. BHPS has collected information on panel members’ neighbourhood characteristics at waves 8 and 13. As well as giving their own appraisal of local facilities and services (schools, health, transport, shopping and leisure), panel members are also asked to rate their neighbourhood as a ‘good or bad place to live’ and why.

E1.10 Much information relevant to this outcome is available cross-sectionally in the Scottish Household Survey and there may be some merit in constructing for general population purposes pseudo-panel data from the SHS to evaluate progress towards this outcome . .

Gaps, obstacles and challenges

E1.11 The existence of good quality, comprehensive, longitudinal area-based studies in Scotland means that already some investigations can be undertaken of the issues central to this outcome. However, the focus of these studies on Glasgow and the West of Scotland may have some implications for the relevance of their findings to other localities. There is an argument, therefore, for the establishment of comparable studies in other contrasting areas which will permit some investigation of the general applicability of results.

Outcome 11: We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others

Definition of key concepts

E1.12 In the Spending Review this outcome is linked explicitly to the 'safer and stronger' objective. It shares obvious aspects with a number of other outcomes, particularly 'safe from crime' and 'well-designed and sustainable places'. Again, this outcome recognises the importance of neighbourhood characteristics in shaping individuals' lives, but here the community theme moves away from the concepts of neighbourhood design and the infrastructure of services and amenities over to a more explicit focus on the people who live there. The focus is on the relationships between community members and their interactions with each other - in other words the mechanisms that operate within local communities and enable them to succeed. Thus successful communities are not only those that provide the services required in a complementary environment, but also those which engender a sense of belonging, attachment and collective efficacy ('social capital') and through this create a place that is attractive in which to live, work and play.

E1.13 The definition of a 'community' or 'neighbourhood' has long been problematic in research. Often, to accommodate linkage to geographic datasets, or for policy purposes, communities are defined in administrative terms – data zones, census output areas, electoral wards, postcode sectors and local authority areas are examples. While very useful for some policy purposes, often these administrative boundaries do not correspond to any 'real' sense of community as it is experienced and perceived by residents on the ground. The work necessary to resolve such conflicts and to create community boundaries as seen by residents is demanding and resource-intensive and as a result existing administrative boundaries are used almost exclusively in research.²⁰

E1.14 A number of concepts, instruments and scales exist in community research that attempt to measure what could be described as the strength and resilience of a community and the support that it offers. Many of these instruments are used in the Go Well Glasgow Community Health and Wellbeing study. They include:

- Informal social control. This widely used community indicator particularly in environmental criminology, has also been referred to as 'collective efficacy' and is defined as the capacity of a community to regulate those passing through it in accordance with common values
- Neighbourhood reputation. Reputation is simply how 'good' or 'bad' residents of a particular neighbourhood perceive it to be and how they think people from outside their neighbourhood perceive it

²⁰ For an example of an alternative approach, see information on the neighbourhood element of the Edinburgh Study of Youth Transitions and Crime in Smith, D. and McVie, S. *et al* (2001) *The Edinburgh Study of Youth Transitions and Crime: Key findings at ages 12 and 13*

- Safety. The extent to which people feel safe when out and about in their community either during the day or after dark is commonly used as a measure of 'safety' or 'fear of crime'
- Belonging. How much residents feel they 'belong' to their neighbourhood
- Harmony. This concept attempts to capture whether residents feel the community is a place where people from different backgrounds get on well together
- Community participation. This encompasses residents' involvement in volunteering as well as membership of local groups such as sports clubs, interest groups or organisations with a wider societal purpose
- Honesty and trust. Whether residents feel items lost in the neighbourhood would be returned if they were found
- Social cohesion. This is an indication of how close, and friendly, relations are between people living in the neighbourhood often measured through questions which ask about contact with neighbours and familiarity with local people, e.g. how often people speak to their neighbours, and/or how well respondents know other people in their community
- Child-friendliness. More common in child or family-focussed studies, this is sometimes included simply as a question about how 'child-friendly' respondents feel their neighbourhood is. In other cases several more subtle questions are used to measure this
- Incivilities. These are measures of low-level, local disorder such as rubbish in the street, broken windows, vandalism, groups of young people, or public drunkenness, which indicate that unwanted behaviour is not being effectively controlled. Respondents are usually asked to rate how much of a problem each incivility is in their local area

E1.15 On the basis of these measures, a community which is strong, resilient and supportive would be characterised by high levels of informal social control, a positive internal and external reputation, low fear of crime, a strong sense of belonging and social cohesion, perceived high levels of harmony, trust, honesty and contact amongst residents, active community participation, child-friendliness and low levels of incivilities. There is a strong correlation between all of these aspects. As a result, processes and interventions which realise a change in one characteristic are likely to also produce a change in others. For example, improvements in community cohesion are likely to increase informal social control, which will result in a decrease in incivilities. This may result in residents feeling 'safer' and furnishing their neighbourhood with a more positive reputation. Doubtless these community changes will also have broader impacts such as improving the health and wellbeing of residents on the basis that living in an unsupportive community environment characterised by unfriendliness and fear will have negative impacts on the mental health and wellbeing of its inhabitants.

Evaluating progress towards this outcome

E1.16 Longitudinal research for this outcome can relate to two issues. What processes enable a community to become 'strong, resilient and supportive'? What benefits, over the long term, living in a strong, resilient and supportive community has for the people who live in those communities? Longitudinal data, which incorporates detailed information collected from community residents, is therefore

essential to track changes in community relations, to identify the factors which contribute most effectively to positive community regeneration in this respect, and the effects of positive change on the population, as well as the effects of lack of change where observed.

Contribution of existing data

E1.17 Again, by definition, the area-based studies considered by this review are better placed to provide the right type of evidence for investigating these processes and effects. The community health and wellbeing survey in Go Well Glasgow collects comprehensive information around this theme with data on community cohesion, community participation, safety and belonging, social harmony, informal social control, trust/honesty and contact with neighbours. Each geographical area included in the study has been classified into one of four groups according to its size, location and planned interventions – major transformation areas, special project areas, refurbishment areas, and peripheral estates²¹. Scores on the community measures, as well as a combined ‘cohesion’ score, can be compared and contrasted across these different areas. Over time, changes in this score within areas can be tracked and these changes can be directly linked to the specific interventions undertaken. For example, certain types of intervention may be more successful in improving cohesion in areas with a particular tenure mix, type of housing stock, geographical location or population with particular socio-economic characteristics.

E1.18 The West of Scotland Twenty-07 study, like Go Well, has locality studies as part of the research exercise. The study has also included a similar range of area-based measures as Go Well. However, the vast amount of health data collected in the West of Scotland study means that, unlike Go Well, it is well placed to look at the impact of these aspects of community on the health and well-being of residents. Indeed, a range of studies have already been undertaken to look at this. For example, data have been used to explore the relationship between belonging to social organisations and the risk of heart disease²². Although no particular consistent patterning emerged, there was a relationship between membership of some groups and better health outcomes. In particular, participation in groups was related to lower levels of psychological distress. Other work compared the health and perceived sense of social inclusion among those living in two socially contrasting neighbourhoods in Glasgow and found a significant (negative) relationship between people’s sense of community belonging and symptoms of mental and physical ill-health.²³ However, each of these papers is based on cross-sectional analysis of a single wave of data. The potential for modelling changes in community belonging, participation and social inclusion, the impact of these on health outcomes, and the resulting identification of effective mechanisms and processes for change lie in the longitudinal data.

²¹ For more information on the definition and classification of Go Well areas see Egan, M. and Kearns, A. (2007) *Go Well Working Paper 2: Selection, Definition and Description of Study Areas*, Glasgow: GCPH. Available at www.gowellonline.com

²² Ellaway, A. and S. Macintyre (2007). "Is social participation associated with cardiovascular disease risk factors?" *Social Science & Medicine* 64: 1384-1391.

²³ Macintyre, S. and A. Ellaway (2000). "Neighbourhood cohesion and health in socially contrasting neighbourhoods: implications for the social exclusion and public health agendas." *Health Bulletin* 60(6): 450-456.

E1.19 The Edinburgh Study has a strong, ecological element and incorporates a linked 'neighbourhood' study. Unlike the previous two studies, the Edinburgh Study includes the whole of the Edinburgh authority area, which has been divided into 91 distinct neighbourhoods. Measures of informal social control, incivilities, social cohesion and safety have been included at several sweeps of data collection from the youth cohort. The study has also supported a separate 'community survey' of Edinburgh residents measuring community participation, trust, informal social control and other aspects of community relations in the study neighbourhoods. This information is used to generate neighbourhood level measures which can be linked to the main data on young people and is used largely to explore the impact of these measures on individual offending behaviour and neighbourhood levels of crime. Changes in levels of informal social control in neighbourhoods over time can therefore be linked to changes in crime levels, as well as the other area-based measures and to individual outcomes for young people in the cohort.

Gaps, obstacles and challenges

E1.20 The availability of data, from the Edinburgh Study, as well as that from the two Glasgow studies, on the component parts of this outcome means that some analysis may be permitted that explores how 'area specific' findings are. However, despite having some geographic variation, all data in this area is based on the experiences of urban-dwellers, and there is a distinct lack of longitudinal information relevant to the inhabitants of Scotland's many rural communities.

Research Exemplar

McVie, S. and Norris, P. (2006) *The Effects of Neighbourhoods on Adolescent Property Offending*, ESYTC Research Digest No. 11

Neighbourhood characteristics at age 12 do play a part in influencing whether or not a young person starts property offending during early adolescence. Over and above this, young people's perceptions of their neighbourhood impact on their offending. Young people who perceive their areas to be poorly controlled by the adults who reside there are more likely to start offending early. Those who get involved in chronic property offending are significantly more likely than other young people to live in socially disorganised neighbourhoods, which are characterised by frequent population turnover and a high density of young people.

These findings provide support for initiatives which aim to empower communities to deal with offending at the local level by adopting strategies that emphasise a lack of tolerance towards crime and disorder amongst young people and which focus on improving social capital within residential neighbourhoods. Area based initiatives aimed at preventing property crime amongst young people are most likely to be effective if they target adolescents at age 12 or under, whereas those who start offending later appear to be less influenced by neighbourhood conditions.

Outcome 15: Our public services are high quality, continually improving, efficient and responsive to local people's needs

Definition of key concepts

E1.21 Efficient and accessible delivery of high quality public services has long been an objective of central and local government administrations. It is on this aspect of performance that members of the public most readily assess government and where they are quickest to criticise. This is also a key measure for local authorities, as many of the services being provided to, and assessed by, the public are provided by local authorities. However, providing good quality public services is not simply a ploy to satisfy the general public; the outcome acknowledges that access to appropriate and necessary services can have a significant positive impact on individual outcomes. For example, recent research from the Growing Up in Scotland study has demonstrated the independent positive correlation between a mother's attendance at ante-natal classes - a key element of ante-natal service delivery - and breastfeeding initiation²⁴. However, GUS data also indicates that particular groups of mothers are less likely to attend ante-natal classes in relation to one or more of a set of specific aspects – awareness of the classes or their mode of delivery, for example. The suggestion is, therefore, adapting the provision of ante-natal classes (i.e. being 'responsive to people's needs') and raising attendance levels amongst these key sub-groups, will subsequently increase breastfeeding initiation, bringing with it the widely recognised benefits of breastfeeding for the mothers and children involved.

E1.22 Currently, the processes used to assess public service provision do not regularly draw on this type of longitudinal approach. Instead, assessment has traditionally been conducted via 'performance monitoring' where targets are set and performance against these targets is reviewed on a regular basis. Examples include annual publication of the percentage of primary school classes with less than 20 pupils, or the proportion of hospital day-patient cases concluded within a set time-period. Whilst this part of the process is important, it does not provide a comprehensive appraisal of public service provision.

Evaluating progress towards this outcome

E1.23 It is necessary, when demonstrating improvement, to consider the processes and mechanisms (inputs) through which improvement is achieved and to be able to account gains (or losses) in efficiency, quality of and responsiveness (outputs) to these processes. Those processes identified as most successful in improving performance can then be applied, where relevant, to other areas of service provision. For example, the improvement of a health board may be assessed in relation to faster and more convenient access to care and an increase in the range of services available. The mechanisms which support that improvement may include increases in staff alongside expansion and modernisation of the buildings, equipment and facilities available to care for patients. Whilst cross-sectional data can demonstrate

²⁴ Skafida, V. (2008) *Breastfeeding in Scotland: the impact of advice for mothers*, CRFR Research Briefing No.36, Edinburgh: Centre for Research on Families and Relationships

improvements in quality, efficiency, and responsiveness it does not permit a clear understanding of the processes which have supported those improvements.

E1.24 This outcome demands that performance is assessed in four overlapping domains – quality, continuous improvement, efficiency and responsiveness. Any data being used to evaluate performance therefore requires the combination of data from across these domains and is also likely to require joint use of both administrative and survey data. Measuring efficiency for example necessitates some form of economic analysis – simply what it costs to provide the service - to demonstrate cost effectiveness and value for money. This involves use of administrative data. On the other hand, being responsive to local people's needs can only be achieved by investigating those needs - by asking local people about local services – which requires survey data. Such data is also necessary across the full range of public service provision in health, education, justice, leisure and other policy areas.

Contribution of existing data

E1.25 A significant proportion of the resources reviewed contain some data about public services. This usually takes the form of a measure, or measures, of respondent access to, contact with, and appraisal of, local services. Health, education, childcare, employment, leisure and transport services are covered in some form across the various longitudinal resources although very few cover multiple services in different domains. Data on health services is most prevalent and most detailed. For example, the BHPS has included information on use of health services as a 'core' element of the individual questionnaire since its launch. The scale and detail of additional data collected by BHPS allows patterns of health service use to be assessed in relation to various health-related or other outcomes.

E1.26 Both MCS and GUS also contain a range of information about access to and use of various health services as well as detailed information on use and appraisal of childcare services. By considering information on assessment of local services (that is, how good or bad they are perceived to be, problems with cost or access) alongside actual data on service use and contact, the effect of perceptions on use can be examined. Each of these studies is a particularly useful source to look at the specific issues related to service delivery for children and families, and how service use can impact on child outcomes. The single example outlined above demonstrates this value in relation to GUS, but there are numerous other analytical opportunities presented by these datasets. Furthermore, the large sample size of GUS allows separate analysis of key sub-groups to be undertaken, such as lone parents and younger mothers. The aim is to assess the particular service needs and service assessments of parents in those groups. The Families and Children study also has relevant data within this area and for families with children of a broader age range than in the cohort studies. Both MCS and FACS, with UK-wide samples, offer the ability to compare service use and assessment by families in Scotland with those in other areas of the UK, as well as exploring any potential difference in outcomes from accessing particular services.

E1.27 Apart from health and children and families, there are a number of longitudinal sources that support investigations of the quality and responsiveness of employment

services, and the employment-related outcomes associated with the effectiveness of these services. For example, the Scottish School Leavers Study collects information on careers guidance received by the respondent, as well as data on how they found a job. Linking this to later information on economic activity means the success (or otherwise) of the careers service or other sources of advice, or of government training schemes, in leading to the individual obtaining secure and stable employment. Similar can be judged. Analysis can also be undertaken using the Labour Force Survey, which has a bigger Scottish sample size and permits UK comparisons, although the time-period is more restricted.

E1.28 Similar to the community data just discussed, the Scottish Household Survey collects a wide range of data on the public's access to, use and appraisal of various public services. With a large national dataset, capable of analysis at local authority level, there may be some benefit to be gained from constructing pseudo-panel data for longitudinal analysis.

Gaps, obstacles and challenges

E1.29 Longitudinal data on access to, use and appraisal of public services is available through a range of sources. It is a fragmented picture, as may be expected, with those studies focussed on families and children collecting information on the services of most relevance to those groups and no single longitudinal source presents as comprehensive an assessment of public services as does the Scottish Household Survey for example. Thus, utilisation of multiple resources will be necessary to cover fully all the issues central to this outcome.

Community summary

E1.30 Community issues are ripe for consideration via longitudinal data and analysis and Scotland has some excellent examples of existing longitudinal research capable of doing so. It is in this domain that the change realised through policy interventions is perhaps most visually obvious to the population creating readily identifiable 'before' and 'after' conditions through new housing or improved amenities. Of course, many interventions required here will also be of a different type such as increased service provision, better community relations or more cost-effective services.

E1.31 Similarly to the economic outcomes, the study of communities requires multi-level longitudinal data and multi-level analysis. Evaluating these outcomes will require at once data measuring community level characteristics and change (to explore the extent to which communities are well-designed and sustainable for example) and the characteristics of and any change in the individuals who live in those communities (to investigate community strength, resilience and support). Data linkage is thus also important here to combine survey data from residents with administrative data on local infrastructure and services. The area-based studies – West of Scotland Twenty-07, Go Well Glasgow, and the Edinburgh Study – are of particular value in relation to this domain as they offer detailed area-focussed data along with individual level data and permit the study of effects from different levels. The West of Scotland study, with data spanning twenty years, is the most comprehensive of the three and presents the most detailed dataset.

E1.32 Furthermore, the inclusion of health data allows the study of community-level influences on individual health outcomes. Go Well Glasgow, whilst still in its infancy, is an ambitious project with multiple complementary components and is an excellent example of involving local authorities as research partners. It is notable that the first two of these studies is based in, and focuses on, the City of Glasgow. This is warranted of course as Glasgow exhibits extreme and specific examples of many social problems. However, because of the local area focus, the question arises of how 'generalisable' the findings emerging from these studies are to those in other areas, and to Scotland nationally. How different are the experiences being measured in these studies to experiences elsewhere? Without comparable data, either nationally or from other areas, this question can never be fully answered. It would seem beneficial therefore, to have similar, longitudinal, community data generated elsewhere.

F. ENVIRONMENT

Outcome 12: We value and enjoy our built and natural environment and protect it and enhance it for future generations

Definition of key concepts

F1.1 This outcome acknowledges the importance of Scotland's distinct natural environment to its identity, economy, residents and visitors. This natural environment supports a diverse range of living environments, including a large number of remote rural communities. The characteristics and needs of the people and businesses within these communities are specific to the locality and must be understood fully - alongside those in urban and more populated areas,- in national policymaking processes. In other words, policies must take account of the differences and similarities between the people living in these different areas, and evidence to support policymaking must allow these distinctions to be made. There is also a focus on built environment, and whilst the Spending Review refers to this largely in terms of historical buildings, it also encompasses issues related to the standard and provision of housing in Scotland, a key issue which has been touched on in relation to other outcomes.

F1.2 Consideration has already been paid in this chapter to the significance of community dynamics and local service provision in ensuring positive outcomes for individuals and businesses. The importance of longitudinal data in investigating this has also already been stated. This outcome recognises further that many people and organisations in Scotland rely on their surrounding natural environment for their livelihood and the quality and sustaining of that natural environment is crucial to their success, individually and economically. Agriculture and fishing are two relevant traditional industries, but tourism and outdoor leisure facilities are more modern examples.

F1.3 Access to and use of the natural environment by those who are less obviously surrounded by it is also important. This may be through using parks or local open spaces, or the extent to which people visit open countryside or interact with our wider open spaces and more impressive landscapes through hill-walking, sightseeing, holidays etc.

F1.4 The distinct impact of housing tenure and housing conditions on a range of individual outcomes has long been acknowledged and a number of research studies, including many which have utilised longitudinal data and analysis, have demonstrated close links, between housing characteristics, health and disadvantage. For example, analysis of data from the 1970 British Cohort Study indicated that cohort members who lived in social housing as children were more likely to live in social housing as adults and further, that parental housing tenure was a key correlate of adult disadvantage²⁵. In addition, analysis of NCDS data has shown that

²⁵ Sigle-Rushton, W. (2004) *Intergenerational and Life-Course Transmission of Social Exclusion in the 1970 British Cohort Study*, Centre for Analysis of Social Exclusion, CASE Paper No.79

experience of housing deprivation has a substantial impact on the risk of cohort members suffering severe ill health or disability. Indeed, after controlling for a range of other factors, experience of multiple housing deprivation increased the risk of severe ill-health or disability across the life course by 25% on average.²⁶ Similar associations have also been produced using Scottish data from the West of Scotland study²⁷. Indeed the spending review itself acknowledges this important link.²⁸ This outcome thus highlights the need to understand where housing in Scotland is not 'valued' or 'enjoyed' and is in fact detrimental to individual outcomes. There is clearly a need to improve housing conditions in these cases.

Evaluating progress towards this outcome

F1.5 Longitudinal research on rural life and rural economies, or longitudinal data that supports separate consideration of these communities and businesses, will allow the identification of the specific factors, processes and mechanisms that generate positive outcomes for individuals living and working in these environments. The identification of these distinct processes and mechanisms will ensure that policies and services for such communities can be tailored to suit their circumstances and needs, will properly recognise the role of the natural environment, and will help sustain the natural environment. This strategy will help to ensure the role of the natural environment role in local community life can be maintained

F1.6 To evaluate properly progress against this outcome requires two types of data. To examine issues related to the natural environment of the kind outlined above requires studies of the general population with samples large enough to support analysis by area urban-rural characteristics or smaller, geographical units. Data collected within these studies must allow consideration of the interaction between local environment and socio-economic characteristics and outcomes. As such information on employment and economic activity, income, quality of life, housing, education, health and service use would be beneficial. Administrative data covering key rural economies reliant on the natural environment, such as the annual agricultural census based on farms, is also necessary. Indeed, such data could be used to identify specific communities or rural areas for use in research.

F1.7 On built environment, it is necessary to have comprehensive data on housing tenure as well as housing conditions. Of the latter these conditions may relate to amenities, dampness, heating and energy efficiency. To look at the impact of housing on individual outcomes of course requires outcome data on health or measures of disadvantage. To isolate the individual effect of housing as compared to other socio-economic or demographic characteristics of the household or individual also necessitates data on those characteristics. Administrative data on the availability, uptake and quality of housing stock will also be useful. The availability of this type of administrative data over time will allow some measurement of the extent to which housing stock has been 'enhanced'.

²⁶ Marsh, A., Gordon, D., Pantazis, C. and Heslop, P. (1999), *Home sweet home? The impact of poor housing upon health*, The Policy Press: Bristol.

²⁷ Gemmell, I. (2001). "Indoor heating, house conditions, and health." *Journal of Epidemiology and Community Health* 55: 928-929.

²⁸ Scottish Government (2007) *Scottish Budget Spending Review 2007*, Edinburgh: Scottish Government, p28

Contribution of existing data: Natural environment

F1.8 Of the longitudinal resources considered, the Scottish Longitudinal Study is perhaps the most useful because of its large sample size and geographical data. The census information included in the study allows consideration of the socio-demographic characteristics and economic activity of the population in these areas as compared to other areas. Importantly, SLS can also look at patterns of migration in and out of specific areas and communities over time and relate them to the socio-economic data. This makes the study particularly important for evaluating the success of policies aimed at sustaining, or refreshing, remote and rural populations.

Research Exemplar

Jones, G. and Jamieson, L. (1993) *Young People in Rural Scotland: Getting Out and Staying On*, Centre for Educational Sociology, Briefing Paper No.13

The research was based on analysis of the Scottish Young People's Survey, and follow-up interviews in young adulthood with respondents who had been at school in the Scottish Borders when they were aged 16 years.

Migration "works": among those with similar academic ability, migrants are in better economic positions at age 23 than those who have stayed on in the area. By then, some stayers feel discontented and trapped, and would like to leave but they lack the training and skills to compete for jobs elsewhere.

Stayers are usually from local families. Migrants tend to be from families with a history of migration and extended family networks. While some young people are too attached to the area to leave even if they could do better elsewhere, others cannot wait to get away.

Migrants sometimes long to return, but the local labour market does not attract them back once they have obtained qualifications. Aspiring returners, and the few who do return, tend to be from local families with strong local networks.

Policies should be offering real choice to young people rather than be designed simply to retain them in rural communities. Support and information are needed for the migrate-or-stay decision. Parents are not all equipped to provide relevant information, and the formal guidance system fails to recognise the dilemmas and tensions involved.

F1.9 With a Scottish sample size of 12,000 households and (partial) geographic coverage beyond the Great Glen, the Labour Force Survey can also be used to look at specific labour market issues in rural communities as they compare to other communities. The sample design of the forthcoming UKHLS should also be sufficient to allow some analysis of Scottish data according to area geographic characteristics.

F1.10 The Agricultural Census of farms and other sources of environmental data will be necessary for evaluation of this outcome particularly if used in conjunction with survey data where appropriate. However, the inter-departmental business register (IDBR) is also relevant. Being almost universal in its coverage of Scottish businesses, the register could be used to isolate organisations either operating in particular sectors related to the natural environment –marine, agriculture, tourism, leisure – and/or by geographic location. The trajectories of and changes in these

business can then be tracked over time contributing to an understanding of the economic prosperity of rural or remote areas, or their reliance on particular industries for survival. Much of agricultural administrative data is collected to meet European Union requirements, with potential for cross-national research.

Contribution of existing data: Built environment

F1.11 A number of the sources already described in relation to previous outcomes on inequality, community, and access to amenities have demonstrated consistently the value of a number of existing key dataset. Go Well Glasgow and the Scottish Longitudinal Study are particularly valuable in relation to housing tenure and characteristics and their relationship with other socio-economic and demographic variables. Furthermore, the references cited above, which provide existing research examples of this type of analysis, illustrate the value of the birth cohort studies in this respect. However, a number of other sources reviewed are also useful for exploring housing effects.

F1.12 The Scottish Health, Housing and Regeneration Project was set up specifically to measure the health and wellbeing impacts of moving into new, general purpose, social housing provided by Registered Social Landlords. Its aim is to examine to what extent re-housing into a new socially rented accommodation delivers changes in terms of housing conditions, neighbourhood conditions, housing management performance and sense of community; this in addition to changes in the health and wellbeing of tenants. SHARP represents the only resource reviewed which was established with a quasi-experimental design involving ‘before’ and ‘after’ interviews with a ‘treated’ and ‘control’ group. For the purposes of SHARP, the treated group are those tenants who are re-housed, and the control group are a sample of similar tenants who are not re-housed. The availability of comparative data from a control group, alongside longitudinal data on their health and wellbeing, allows the investigation of the independent effects of improved housing conditions. Whilst ambitious, the study is limited by its small sample size – both groups contain between just 300 and 400 households.

Research Exemplar

Lupton, R. (ongoing research project) “The Association between Housing and Life Chances: Control Measures”, Institute of Education, University of London

A good example of the use of longitudinal research for Scottish policy purposes is reflected in SG recent investment in a Scottish component of the further analysis of data collected on UK social housing in the 1946, 1958 and 1970 birth cohort studies. This follows preliminary results showing evidence of rising social exclusion among residents in the more recent cohorts. The new analysis will supply through statistical modelling insights into the reasons for this phenomenon pointing to the features of social housing, including the attributes of those who use it, that need to be changed to reverse the social exclusion process.

F1.13 A key administrative dataset relevant for this outcome is the Scottish Continuous Recording system (SCORE). SCORE collects information from Registered Social Landlords (RSLs) about new lets made in any given year. As well as collecting data about the type and condition of the property being let it also

collects financial information about the let, including rent and affordability, as well as financial and demographic characteristics of the tenants. SCORE is longitudinal at two levels: the level of the property - which will remain in the database as long as it is managed by a RSL participating in the scheme - and the level of the tenant - should the tenant move to another property registered on the database then that move can be tracked, and their financial and demographic details will be updated. SCORE represents a rich, administrative dataset perhaps most suitable for use as a sampling frame for further research. It can also be viewed as a source to which survey data exploring household and individual socio-economic and demographic information about the property could be linked.

F1.14 SCORE is limited in that it includes only information about housing managed by RSLs, thus owner-occupied housing, or privately rented accommodation is not included. Furthermore, not all RSLs participate in the project, although the dataset is sufficiently large to allow detailed analysis despite this.

Gaps, obstacles and challenges

F1.15 In relation to natural environment, the restrictions on sample size, the relevant data content for this outcome, and the need to be able to examine issues specific to remote and rural communities, restrict the number of existing resources available. As acknowledged in relation to the community-focussed outcomes, there are no distinct longitudinal studies of rural communities in Scotland. The proposed survey of attitudes and values in rural Scotland study is cross-sectional but may over time include panel elements.

F1.16 In contrast, there is a wide range of longitudinal data available with which to explore the importance of elements of the built environment, particularly in relation to housing and some of this work is already being done using data from the birth cohort studies. The value of data from Go Well Glasgow is yet to be realised, and there may also be some scope to exploit the SCORE data in analysis of the questions at the heart of this outcome.

<p>Outcome 14: We reduce the local and global environmental impact of our consumption and production</p>

Definition of key concepts

F1.17 Placed firmly within the boundaries of the 'greener' objective, this outcome draws on the widely publicised and acknowledged environmental implications of current consumption and production practices typified by excess, harmful emissions and unnecessary waste of energy and materials. Considerable efforts have already been made to draw attention to these issues and to introduce policies to counter them – the introduction of local and national targets on emissions and waste management for example, or increased access for the population to recycling facilities. Despite these efforts, moving towards 'greener' consumption and production remains a significant task and many individuals and organisations are not yet aligning themselves with the understanding and behaviour necessary to demonstrate real progress against this outcome.

F1.18 To realise this goal, therefore, policy needs to change both the values and behaviour of those individuals and organisations raising the importance, for them, of being more environmentally friendly. However, policies designed to do this must be based on an understanding of the factors associated with greener behaviour, the barriers which prevent it, and the mechanisms which most effectively allow individuals and organisations to change their behaviour. For example, at the individual level, simply introducing more recycling facilities may not necessarily result in higher levels of recycling if either transport to such facilities is problematic or there is a low level of awareness of the importance of recycling. Similarly, the introduction of targets for businesses to enforce greater use of renewable energy, or lower emissions, may not be successful if the implications for businesses of reaching those targets are counter-productive in terms of cost or other aspects. There must also be an agreed understanding of how 'impact' is measured and whether it requires different interpretations in different contexts. For example, whilst nuclear power may have low impact in terms of being less carbon intensive than fossil fuel, it carries other dangers to the environment.

Evaluating progress towards this outcome

F1.19 Longitudinal data that tracks awareness of, and opinions towards, environmental issues, and the prevalence of 'green' behaviours, will provide the evidence necessary for effective policies. In addition, at the level of the individual, combining data on 'greener living' with other outcome data, particularly in relation to health, will provide the opportunity to investigate the benefits of adopting a more environmentally sympathetic lifestyle. For example, the adoption of a more sustainable approach to transport encourages lower car use and more walking or cycling. These behaviour changes can raise levels of fitness and activity accompanied by the health benefits with which these behaviours are associated. In addition, reducing emissions creates cleaner air, another health benefit. However, situations are likely to be more complex than suggested here. For example, a new by-pass may generate more emissions by encouraging people to use their cars, or less through reducing congestion.

F1.20 To evaluate progress against this outcome thus ideally requires information on the consumption of individuals and households - particularly in terms of food, utilities and transport (especially car use) as well as 'green' behaviours in each of these domains including use of energy efficiency measures at home (insulation or energy-efficient light bulbs for example), recycling and composting. Measures of awareness and attitudes are also important. Similar information would also be required for businesses. Alongside this is data which can provide an overall assessment of the state of Scotland's natural environment – pollution, air quality, water quality and associated measures.

Contribution of existing data

F1.21 There are no existing resources available to provide longitudinal data of green behaviours for individuals, households or businesses in Scotland. The Expenditure and Food Survey, a UK cross-sectional study, provides detailed information on household consumption patterns, but does not present opportunities for longitudinal

analysis, and has a small Scottish sample. However, the proposed content of UKHLS does include a number of measures, included as biennial measures, relevant to this outcome. These include fuel consumption, values, beliefs and attitudes regarding global environmental issues, behaviour and attitudes regarding food, waste and water, and activities which engage with the natural environment. The richness of the additional data collected in UKHLS will allow that detailed analysis of the factors and characteristics associated with greener behaviours will be possible using this dataset.

F1.22 A large amount of environmental data is routinely collected and analysed by a range of government agencies such as the Scottish Environmental Protection Agency. This is a huge administrative resource that can be used longitudinally at the level of the feature being assessed – a river for example. There is potential for the environmental data to be used as ‘outcome’ information to demonstrate the impact of changing behaviours by individuals and businesses over time although this would be a complex analytical task.

Gaps, obstacles and challenges

F1.23 The importance of studying and attempting to change individual consumption patterns to make them ‘greener’ is a relatively recent identified need which perhaps explains the lack of longitudinal information in this area. The proposed related content of UKHLS would seem sufficient to explore this area in the first instance.

Environment summary

F1.24 Although essentially related, the specific issues covered in this domain – natural environment, built environment, and the environmental effects of production and consumption are quite distinct and some lend themselves more easily to consideration and evaluation through longitudinal data.

F1.25 Scotland takes great pride in its natural environment, and many people in remote and rural communities rely on it to support local business and the local economy, which in turn impacts on local levels of employment and wealth. The analysis of outcomes in previous sections has shown the effect of these latter factors on individual outcomes. As such, it is important, particularly for the residents of these communities, that the mechanisms and processes which make them successful, and their relationship with the natural environment are properly understood. There are datasets which can support some elements of what is required here. All are large enough to allow representation of remote and rural situations – the IDBR, the Labour Force Survey and the Scottish Longitudinal Study – but each have their limitations. In their most recent designs, each of the large-scale, cross-sectional government surveys – Scottish Household Survey, Scottish Health Survey, Scottish Crime and Victimisation Survey – all have large enough samples to support detailed analysis of issues specific to remote or rural areas. But there is no longitudinal data of this nature. The case for a longitudinal study specifically focussed on people who live in rural and remote areas is therefore a strong one.

F1.26 The importance of housing as a factor which impacts on individual outcomes has been shown in this domain and others. The British cohort studies have been put to good use for exploration of the effects of housing, and work is still ongoing in this area using these datasets – including some analysis commissioned specifically for Scottish Government use. There are other datasets of relevance particularly the area studies – Go Well Glasgow and West of Scotland. SHARP, limited by its size, is nonetheless a good example of the type of quasi-experimental study, with housing at its heart, that could be rolled out on a larger scale to support more detailed analysis.

F1.27 As questions relating to the environment, however it is defined, become more important, so does the need to understand the processes involved more clearly. Hence the case for longitudinal data. How much there is to be gained from considering environmental issues related to consumption and production longitudinally is difficult to judge and there is no useful data currently available for this. Early examination of the environmentally-focussed content proposed in the forthcoming UKHLS will be necessary before decisions are made about further investment in the collection of such environmental data.

G. INEQUALITY

Outcome 7: We have tackled the significant inequalities in Scottish society

Definition of key concepts

G1.1 This outcome is sufficiently broad that it explicitly links to three objectives in the Spending Review – wealthier and fairer, healthier, and safer and stronger. It is clear however, on further consideration, that inequalities can also be defined and measured in relation to variables relevant to the ‘smarter’ and ‘greener’ objectives if not all five. Indeed, the Spending Review recognises that, often, inequalities in each of these domains are experienced simultaneously creating households with multiple and complex needs. For example, people on low incomes, with higher material deprivation, often live in disadvantaged communities with fewer local resources or resources of lower quality. They are likely to have inferior housing and accommodation, have fewer skills and lower educational attainment, are less successful in employment, suffer poorer health and have difficulty accessing the services they require. In aggregate their situation may translate into what is typically described as ‘social exclusion’ a form of isolation in which social cohesion is under threat. Reducing these inequalities therefore, “requires a shared endeavour across Scotland to tackle the root causes”²⁹ and to expose and understand these root causes requires longitudinal data.

G1.2 With such a broad focus, it is instructive to give some space to considering how ‘inequalities’ might be understood in relation to key policy domains.

G1.3 Measuring inequality is challenging because it shifts the emphasis away from the level in the population of an attribute as expressed in the mean value, and what predicts it, to individual variation between individuals within the population around the mean – as measured by the variance. Moreover economic inequality with which the term is typically identified, such as in wealth, is just part of a complex picture. Whilst levels of household or personal income may give an overall, and general, indication of the differences in wealth amongst the population and how this varies between such demographic characteristics as social class and gender, income is but one aspect of what can be considered ‘wealth’. To understand inequality fully in this domain therefore requires measurement of less obvious components of wealth to produce a detailed picture of the financial situation of the individual and by extension their family and community. These components may include ownership of assets, material deprivation, car ownership, household facilities, savings, pensions, and levels of credit or debt. Furthermore, given that housing accounts for a significant proportion of individual or household wealth, it is important to collect information on housing equity, a concept that is particularly challenging to measure.

G1.4 Under education and lifelong learning, inequalities may relate to differences in access to learning, training, and further and higher education, and their outcomes in qualifications. These may lead ultimately to differences in employability and access

²⁹ Scottish Government (2007) *Scottish Budget Spending Review 2007*, Edinburgh: Scottish Government, p28

to jobs. To measure these types of inequality requires data on educational attainment and skills, literacy and numeracy, access to and familiarity with ICT, employment, and employment-related training.

G1.5 Health inequalities exist in the numerous domains of health which have been discussed already. However, particular interest focuses on examining differences in experience of acute and long-standing illness, health-related lifestyle choices and behaviour, and access to and use of health services.

G1.6 Inequalities also exist at an area-level. 'Safer and stronger' communities, which will be discussed below, are characterised by a range of factors including access to services, low-levels of crime, disorder and anti-social behaviour, and high levels of satisfaction, trust, informal social control and integration. To compare communities and examine inequalities between them therefore requires this type of data to be available on different communities in Scotland. Of key interest in this area, specifically in relation to Scotland, are differences according to urban-rural classification.

G1.7 Inequalities also exist through discrimination, prejudice, abuse and harassment on the basis of gender, race, religion or other individual characteristics. Measuring these inequalities therefore requires not only information on the individual characteristics which form the basis of the discrimination but also on the type and nature of discrimination experienced.

Evaluating progress towards this outcome

G1.8 The complex and multi-faceted nature of inequalities, and the need for combined information to measure them, is already recognised to a degree in a key source of Government administrative data. The Scottish Index of Multiple Deprivation (SIMD) utilises information on 37 indicators across seven domains – current income, employment, health, education, skills and training, geographic access to services, housing, and crime. SIMD is reported at data zone level, which allows small pockets of deprivation to be identified. Although essentially cross-sectional in nature, SIMD is updated every few years allowing analysis of change in deprivation, or inequalities, at an area level, over time. While SIMD is extremely useful for considering area-level inequalities, and their effects on individual outcomes, as with any area level measure there is a risk of 'false positives' or 'ecological fallacy' where some individuals living within deprived areas are not subject to the deprivation and inequality assigned to them by the area level measure. Similarly many people outside the high deprivation area may be overlooked. As such, individual level data is also necessary.

G1.9 By using individual, longitudinal data there is an opportunity to gain insights into what 'causes' inequality; what are the factors that lead to the vast differences amongst the population? Longitudinal data also permits investigation of the mechanisms that maintain inequality, the barriers which stop people from improving their status, and the most effective means of overcoming those barriers.

G1.10 Note however, that the most significant changes in inequality occur as a result of broader international or society-level macro-economic change. Thus, for example,

changes in the terms of trade can have an adverse effect on the lower paid, with the decline of trade unions impacting on the status of manual workers. Technological change – particularly through the expansion of information technology in employment – further reduces the ‘unskilled’ sector forcing many out of work. Such transformation will be picked up only indirectly via household surveys.

G1.11 The Spending Review is explicit in its acknowledgement of the value of longitudinal data in relation to this outcome - “by improving employability, housing and communities and by giving our children the best possible start in life, we will help reduce inequalities later in life”³⁰. The availability, and the results of analysis, of historical longitudinal data already permit some understanding of what can be improved at an earlier stage in order to produce a desired outcome later; it can thus already inform policy specification. For example, we can track the reduction in gender inequalities in education and employment going to using the 1946, 1958 and 1970 birth cohort studies³¹. However, contemporary and concurrent longitudinal data is also required to assess accurately the impact of observed changes on current employability, housing and communities on later outcomes. In relation to health inequalities, the Spending Review states a desire to “encourage everyone...to take more ownership of their health” suggesting an aspiration to change people’s behaviour in relation to their health-related lifestyle. Without longitudinal data the extent to which any individual has actually done this (stopped smoking, reduced alcohol intake or changed their diet, for example) cannot be measured.

G1.12 Given the broad range across which inequalities are measured, most of the studies offer some ability to look at inequality in some form. However, there are a number of key studies which offer a particularly good resource to study multiple inequalities and the interactions between them or particular inequalities in detail.

G1.13 ‘Go Well Glasgow’ is an example of the former. Go Well encompasses a number of separate, but related, research exercises, several of which have a longitudinal element and all of which aim to examine (particularly related to housing and neighbourhood) social and health inequalities across the population of Glasgow. Although the project is based in Glasgow, it is intended to provide findings that are relevant to national policy, drawing on, as exemplars, the particularly acute social problems that exist in Glasgow. The Go Well framework document states that “Glasgow is a particularly interesting city in which to study urban change and its impacts in this way due to the scale of deprivation and level of inequalities within the city. Glasgow experiences in extreme form many of the problems identified...as national policy priorities.”³² The Community Health and Wellbeing Study is following 6000 randomly selected individuals in 14 key areas of Glasgow over a 6-year period, with interviews conducted every two years. The study collected baseline information on health, including general health, illness, health behaviours, housing, neighbourhood, and income – the key domains across which inequalities persist –

³⁰ *Ibid.*, p28

³¹ Ferri, E. Bynner, J. and Wadsworth, M.E. (2003) *Changing Britain, Changing Lives*, Institute of Education press.

³² GoWell (2005), *Glasgow Community Health and Well-being Research and Learning Programme: Investigating the Processes and Impacts of Neighbourhood Change – Programme Framework*. Go Well Working Papers, 1. Glasgow: GCPH, p7

and monitoring changes in these characteristics across the cohort over time. It therefore presents a valuable resource to first identify the extent of inequalities which exist, examine the interactions between different types of inequality and track the extent to which things change, what fuels that change or what prevents it. This study is particularly well-placed, because of its multi-level ecological design, to study area effects and the impact of local community-based initiatives on individual outcomes. With a particular focus on housing, the study is also well-placed to explore how housing conditions (in which significant inequalities exist) and how improvements in housing may impact on other outcomes and inequalities in other domains (such as health).

G1.14 As its title suggests, the new Wealth and Assets survey collects particularly detailed information on financial and non-financial assets of households making it an invaluable source with which to examine inequalities of wealth in its broadest sense. Whilst the majority of studies considered in the context of this review collect data on household income, few provide much additional detail on the precise financial situation of sampled households. The content of WaAS extends to include information on unsecured debt and pensions both of which, in recent years, have been subject to intense scrutiny and in which there is a significant degree of inequality. WaAS permits detailed consideration of the relationship between different types and measures of wealth and thus a greater understanding of wealth inequalities. This detail, combined with longitudinal data, means that more precise examination can be made of changes in financial status. These include increases or decreases in unsecured debt, uptakes of bank accounts or investments, the characteristics of those who makes these changes, and the wider impacts of these changes on the quality of life in the longer-term.

G1.15 The principle limitation of WaAS is that it collects little information other than that which is directly related to the financial situation of the household: only some basic socio-economic information on household composition, employment, education, and housing tenure is available. As such, the study cannot be used to measure the impact of specific changes in wealth on broader outcomes, or inequalities in other domains.

G1.16 While still at an early stage of development, the Life Opportunities Survey (LOS) aims to explore “the barriers disabled people experience” throughout their lives and in key policy domains – employment, education, and access to and receipt of services. As the study will also include non-disabled respondents, the precise inequalities experienced by disabled people can be identified and the status of these inequalities monitored over time. Furthermore, by examining the trajectories of those disabled people who achieve their goals, data from LOS could, potentially, identify the mechanisms that are most effective in overcoming the barriers faced by disabled people and contribute to more informed policy implementation.

G1.17 The Longitudinal Survey of Refugees (LSR) is another study that has a population sub-group as its focus, and a sub-group often significantly under-represented in other research. LSR will collect a range of socio-economic information from refugees and asylum-seekers on employment and economic activity, income, housing characteristics and interaction with health, education and legal services. This data will, initially, permit an understanding of the particular

inequalities experienced by this group – how their employment, income and housing characteristics, for example, compare with the rest of the population. Over time however, the data will show how their experience is sustained or altered; it will permit an understanding of what helps overcome the inequalities and, in particular, allow identification of the barriers preventing integration or the mechanisms facilitating it. The study will contain a small Scottish sample of only 200 adults, which means that Scotland-only analysis will be limited, but findings from analysis of the wider dataset are likely to be of relevance.

Inequalities summary: gaps, obstacles and challenges

G1.18 The broad nature of this outcome is such that it bears some relevance to each of the five strategic objectives and it can sensibly be discussed in relation to each of the policy domains defined in this chapter. Furthermore, research evidence indicates that all too often, inequalities in each of these domains are experienced simultaneously creating disadvantaged households and individuals with multiple and complex needs. The evaluation of measures designed to reduce inequality therefore requires multi-purpose data across these many domains. Not only that, but data is also required at different levels as often macro-level shifts impact more significantly on local or individual level inequality. Indeed, attributing (or determining) individual ‘causes’ of inequality is difficult because of the significance of these broader, societal level changes.

G1.19 Nevertheless, there is much to be gained from the longitudinal examination of progress against this outcome, and almost all of the datasets considered have something valuable to add. Those studies, such as Go Well Glasgow, which consider multiple inequalities at individual and community level have particular value. Those whose focus is on the population sub-groups known to suffer disproportionately in terms of unequal status and opportunity, such as those with disabilities, refugees and so on, and whose views are often under represented, particularly merit longitudinal enquiry.

H. IDENTITY

Outcome 13: We take pride in a strong, fair and inclusive national identity
--

Definition of key concepts

H1.1 National identity can face both inward – in terms of the views of the Scottish population - and outward– in terms of the views of international populations. With regard to the former, in a time of recent considerable in-migration, it is important to understand what ‘living in Scotland’ means to the Scottish population in terms of their experiences, opportunities and outcomes. It is particularly important to identify and tackle a national identity which impacts negatively on opportunities, experiences and outcomes for the general population or specific sub-groups. It is not explicit in the outcome, whether the ‘national identity’ being referred to means Scottish identity or otherwise, however, it is clear that the aim of the outcome is not restricted to the achievement of a situation where everyone in Scotland believes that they are ‘Scottish’, but to ensure that those who do live in Scotland consider it to be a good place to live, learn, work and play. It is an identity defined not in terms of birth, but in terms of residency and values. If people are more comfortable in their surroundings, more integrated into their community and happily identify with the society surrounding them then they are healthier, work harder, and are more committed to the success of that society.

H1.2 Part of the challenge of this outcome is in understanding of what it means for people to live in Scotland and, if necessary, to change their perceptions. It is also to promote a fair and inclusive society where everyone, irrespective of their social or demographic characteristics, has, and feels they have, the right to live or work here, and equally access services and opportunities. Only longitudinal data can demonstrate which people change their perceptions, and through what processes, and permit a move to a more inclusive understanding of national identity. Furthermore, only longitudinal data will demonstrate the impact of changes at a broader societal level on the achievement of this goal. For example, employment is a contentious issue for those with less inclusive attitudes, with a belief that jobs should be open to those born or already established in Scotland before being offered to recent immigrants. Thus, using longitudinal data, we may want to investigate the impact of national or individual employment levels on perceptions of Scottish identity. For example, are those people who are, or become unemployed, in a period of population influx more likely to exhibit less inclusive opinions than those who remain in employment? It is essential to analyse these processes, and to understand how situations and attitudes change over time to effectively administer policies designed for change.

H1.3 In addition, it is also important to understand why those who feel excluded by national identity do so and, using longitudinal data, appraise the interventions designed to combat this and ultimately assist in changing their perspectives. For example, research amongst recent immigrants would explore whether they have access to the same opportunities and services – housing, education, employment - as the indigenous population, alongside their feelings about their opportunities and

access, and their integration in, and identification with, Scottish society. The same research can also be applied to other socially excluded sub-groups of the population.

Evaluating progress towards this outcome

H1.4 To measure progress against this outcome requires information on levels of tolerance of, and discrimination towards, individuals of different faiths, nationalities, cultures and ethnicities within society as well as the perceived feelings of integration and identity amongst individuals within such sub-groups. Much of this will be 'attitudinal' data. Such data therefore must be combined with data on access to services, including education and health, as well as other key socio-economic characteristics particularly religious affiliation and ethnicity, and outcome data related to housing, income, employment and family life. Studies such as the British and Scottish Social Attitudes surveys have long encompassed facets of national identity and related ethnic, religious and other forms of cultural integration and discrimination. Whilst their repeat cross-sectional nature is useful in tracking long-term national trends, they do not allow an understanding of changes at the individual level. Whilst there is some longitudinal data capable of exploring notions of identity and how they may change over time (in BHPS and BEPS for example), they rely on fairly limited measures, which could be considered too narrow to encompass the issues of 'inclusion' and 'fairness' covered by this outcome.

H1.5 A number of studies reviewed contain some data that is related to the concept of national identity, but none explore it in enough detail to allow distinct longitudinal analysis of national identity in its own right. Furthermore, as many of these studies are UK-wide, the questions often refer to 'British' rather than 'Scottish' identity. For example, a question in the final interview for the second British Election Panel study asked respondents to agree or disagree with the statement "people like me don't feel at home in Britain".

H1.6 Some potential is offered in the shape of UKHLS and the Longitudinal Study of Refugees (LSR). The proposed content of UKHLS includes questions on ethnicity and national identity, and discrimination and racism as part of the 'rotating core' suggesting some repetition every few years. The detailed additional information collected as part of this study covers service use, employment, housing and myriad other social characteristics of panel members. These combined with a sample that will include representatives of the new migrant populations in Scotland means UKHLS will be useful for analysis of issues related to national identity. One possible limitation of UKHLS is that sub-groups for whom the creation of a 'fair and inclusive' national identity is of most importance – that is recent immigrant and minority ethnic groups – may not be adequately represented in the sample to allow separate analysis. The LSR avoids this limitation by focussing only on a population who will fall into one or both of these groups. With an explicit focus on identifying the processes which allow successful integration of refugees into society, and through collection of data on the study members' attitudes towards the wider UK population as well as community relations, this study could potentially be important for this outcome.

H1.7 Another study derived from the 1970 cohort study is also relevant in addressing directly the issue of identity using qualitative methods. The samples

comprise 60 BCS70 respondents in Scotland and two comparable groups in the north and south of England respectively. Data from the quantitative case records will be used to contextualise the qualitative case studies.

Identity summary: gaps, obstacles and challenges

H1.8 Although national identity is an important issue for many people in Scotland, and for the Scottish Government, it has not so far featured directly in Scottish or UK-wide longitudinal surveys. Reaching a useful and agreed definition of what is meant by 'national identity' is a significant challenge, but is necessary to enable performance against this outcome to be measured over time. There is a case for methodological research to determine how the measurement requirement might be best met. In the meantime UKLHS would appear to offer potentially the best opportunity for pursuing national identity in a specifically Scottish module. It would also show how self-perceived identity changes as panel members get older.

CONCLUSION

The foregoing sections have supplied a rich set of possibilities for research programmes to accompany the implementation of the national strategy. The key longitudinal data sources for the evaluation for each outcome have been identified together with their limitations. Gaps are evident that will need to be filled by new longitudinal data. Priorities for investment in longitudinal resources may therefore need to be re-assessed. Apart from these immediate conclusions, a number of cross-cutting issues have emerged, pointing to the need for further policy appraisal and development with investment consequences. The next chapter examines these issues in some detail leading to our final recommendations.

CHAPTER 4 CROSS-CUTTING ISSUES

(a) Priorities for longitudinal resource support

4.1 The vignettes presented in the previous chapter demonstrate clearly how longitudinal research resources can be brought together in programmes of analysis to analyse the effects of past, and potentially future, policies on the outcomes to which they are directed. The analytic strategy is fundamentally one of hypothesis testing in terms of a theory linking a string of policy actions to policy outcomes in particular areas. Thus we might hypothesise that raising the school leaving age will increase levels of overall attainment and establish at the same time that it does or does not have this effect. Clearly many studies contain the relevant variables needed to assess likely achievement of this objective. However what we really need to know is where investment will be best directed to ensure maximum returns at minimum cost.

4.2 We start this chapter by considering the types of studies likely to produce the best returns in evaluating the National Outcomes, including those currently existing and those new studies that are needed to complete the evidence base. We focus here on longitudinal studies that is to say studies that meet the following criteria:

- have coverage directly relevant to the evaluation of one or more National Outcomes
- collect data from a relatively large sample (minimum 1000) over an extended period
- have retained sufficient numbers of participants (1000) to support robust Scottish analysis
- have prospects of continuation either in their existing form or through replacement

Thus although, as the vignettes have shown, many other data sources also have relevance to the National Outcomes, including large cross-sectional surveys, especially those such as LFS with panel elements, they are not considered top priorities for longitudinal resource investment strategy.

4.3 For the purpose of investment strategy it is useful to group the studies in terms of the main features of design and coverage. This does not necessary imply that those highlighted are more valuable than others, merely that because they are designed to match the Scottish context they contain some of the fine contextual detail that particular National Outcomes demand. Investment is warranted in them for two main reasons:

1. The existing data collected in these studies comprise an underexploited evidence base for secondary analysis of much value for understanding life course processes in the Scottish context and appraising the effects of government policies at different times, including before and after devolution.
2. The value of longitudinal data multiplies the longer data collection continues (subject to numbers being maintained). Hence studies identified

as relevant to the National Outcomes merit investment at the highest level to maximise the returns to be gained for policy from them.

(i) Scottish longitudinal studies

GUS/MCS

4.4 In these terms two studies stand out as exceptionally valuable and meriting continuing investment Growing Up in Scotland (GUS), which has been developed in parallel, and as an extension to, the UK-wide longitudinal study, Millennium Cohort Study (MCS), supplies precisely the kind of information needed to link developmental analyses of the kind possible in the UK-wide study to the National Outcome concerned with ensuring that every child has a good start in life. The distinctive features of Scottish education, family childcare, health and education policy systems - all of which are potential suppliers of administrative data - could enhance its potential value further.

SLS

4.5 Another key study is the Scottish Longitudinal Survey (SLS), not least because it supplies the potential for linkage of a range of other administrative data to a core data set of 274,000 individuals for whom census information is available. Apart from the vital event data such as births, deaths and cancer registrations linked to the census data, there is much potential for adding other administrative other – e.g. tax and benefits, housing and social care information from local authorities. This would not only develop SLS into a powerful analytic tool but could assist in the construction of sampling frames (based on aggregate/area level to protect individual anonymity) for more detailed longitudinal investigations.

SSLS

4.6 The third national study, Scottish School Leavers (SSLS), is currently suspended, while under review and is unlikely to be continued. The basic problem with the study shared with its English counterpart - the Youth Cohort Study - is the postal method of data collection leading to large drop out rates especially of those on which policy is focussed, i.e. in England young people not education employment or training (NEET) and in Scotland the More Choices and More Chances group. Data adjustment methods, including re-weighting to restore the distributions for key variables, such as gender and social class, to the distributions with which each cohort began, can rectify the problem to a certain extent. This is demonstrated in the ESRC-funded *Education and Youth Transitions* project in which harmonised datasets for analysing the Scottish and English youth transition data were constructed (see research exemplar below)³³. And weighting is standard practice in government use of the English YCS data. However, such adjustments are often not satisfactory because of the complexity of individual transitions that will be lost if sizable proportions of young people in the policy target groups drop out of the survey. This was one of the factors that motivated the decision to establish the

³³ Centre for Educational Sociology (2006) *The Youth Cohort Studies: How Good is the Evidence?* CES Briefing, No. 38

Longitudinal Study of Young People in England (LSYPE), which has involved since 2004 annual data collection by interview with 19,000 young people and their parents and has relatively low drop-out. Continuing the study post-18 as part of UK Data Strategy with a view to running it from then on in partnership with a university is currently being scoped, alongside starting a new study in 2010.

4.7 The possibility of replacing the SSLS by individual level data held in the Careers Advice National database is under consideration with the possibility of linkage to individual data in the school years prior to transition into the labour market or further and higher education. The issue that arises then is whether this source would be able to supply data of the richness of a study like LSYPE to address the complexities of need that are manifested well before 16. In terms of national strategy there is a case for repeating the equivalent of GUS at this later 'youth' stage of the life-course where so many policy challenges arise on which the Careers Advice database would be the means of post 16 continuation. How far data collection would extend in the direction of harmonization with LSYPE as In the GUS/MCS case would need to be considered.

4.8 The advantage of a Scottish survey of this kind rather than simply a replication in Scotland of an English survey such as LSYPE, is that, as in the case of GUS, proper attention can be given to the complex ways in which English and Scottish institutions and experiences for this age group are not the same from school into further education colleges and the Scottish qualification system. The main benefit of harmonisation where possible would be that in a quasi experimental sense comparisons between policies directed at the 16-19 period in England and Scotland could be compared in terms of the effects they were having on transition outcomes.

SSA

4.9 The Assessment of Achievement Programme/Scottish Survey of Achievement (SSA) would be another important component of this development. As noted in the previous section the study is currently being re-designed to support the introduction of the Curriculum for Excellence. This means that the survey is likely to change substantially. Any future possibilities for longitudinal research will be dependent on the shape that this takes. The Individual Pupil Record system in England supplies a complete census of the state school population followed up through primary and secondary school (PLASC). PLASC's major weakness, however, is the omission of the private sector.

Research Exemplar*Social Class inequalities in Education in England and Scotland*

David Raffe, Lind Croxford, Christina Ianneli, Marina Shapira and Cathy Howieson
CES Special Briefing No 40

Governments across the UK aim to “narrow the attainment gap” or “close the opportunity gap” in education. One indicator of this gap is the rising inequality post 16 in levels of participation and attainment of young people from different social classes. The ESRC – funded *Education and Youth Transitions Project* used cohort survey data to examine the changing experiences of 14-18 year olds in England, Wales (Youth Cohort Study) and Scotland (SSLS) between the mid 1980s and the end of the 1990s. Comparing England and Scotland, social class differences in participation in HE were higher in Scotland. However, these differences in entry to HE could largely be attributed in both countries to class differences in achieving the qualifications of entry to HE. Inequalities in entry to degree courses were wider than for HE as a whole.

SLSA

4.10 Following the period of transition to adulthood the next stage of the life course identified in all industrialised societies as presenting critical policy challenges is the ever-extending transition to old age. Another specialised national longitudinal study with much policy potential, currently at the scoping stage, is the Scottish Longitudinal Study of Ageing (SLSA). Including this Scottish version of the English Longitudinal Study of Ageing (ELSA) in the Scottish portfolio of longitudinal studies will again have much value for comparative purposes. Apart from supporting evaluation of the National Outcome concerned with living ‘longer, healthier lives it would also have something to say about pension adequacy and the extent of and consequences of pensioner poverty and welfare more generally.

4.11 Moreover, the SLSA, if modelled on ELSA, while retaining the key Scottish context in its coverage, would make the study eligible for the Study of Health and Retirement in Europe (SHARE) involving 14 European countries. This project is the leader in international comparative longitudinal study and receives substantial funding from the Institute of Ageing in the USA, bringing in another line of investment into longitudinal research in the UK, from which Scotland would be a beneficiary. A separate longitudinal study of ageing recently established in the Irish Republic (TILDA), also part of SHARE, provides another basis of comparison from which Scotland would benefit.

(ii) UK wide longitudinal studies

4.12 These are of two kinds: those based on representative samples of UK or GB wide populations with samples sizes for the Scotland Wales and Northern Ireland proportionate to their population sizes and, more recently, studies with sample boosts to support analysis for each country in its own right. Of the UK-wide studies of the first kind, the new UKHLS - with annual follow-up up of 7,500 Scottish individuals and first data available in 2009/10 - absorbs the current British Household Panel Survey now in its 15th year. BHPS had the Scottish part of its sample boosted in 2004 to 1,500 households twice the former size. Household panel surveys support short term-dynamic modelling of family processes, linking for example, the tax and benefit system to the experience of employment and unemployment in contrasting areas. UKHLS has the additional attraction of a ‘modular’ approach to coverage whereby certain topics enter the survey at different times and repeated

measurement is at longer intervals than the annual family economics and employment data.

4.13 As the UKHLS matures, opportunities will steadily increase for examining the long-term consequences of policy exposures in relation to different outcomes of which clearly the economy, family, health and education development policy areas are the most prominent.

4.14 The British 1958 and 1970 and Millennium cohort studies (1958, 1979, 2000) also offer much secondary analysis potential, but with smaller sample numbers for the 1958 and 1970 cohorts (NCDS, BCS70) for Scottish analysis - usually up to 1000 individuals. Such numbers are adequate for Scotland - England comparisons within the dataset as a whole, or in statistical models treating the England-Scotland difference as a binary variable. But with missing data taken into account the numbers limit Scotland-specific analyses to fairly general research questions. As noted previously, the exception is the 2000 study, MCS, for which a sample boost brings Scottish numbers to around 2000. The area-based sample design ('electoral divisions' in Scotland) and over-sampling of these to boost the numbers in disadvantaged groups are other important features. One anomaly, however, should be noted as it has raised questions about the suitability of MCS data for Scottish purposes. Differential drop-out rates have been observed between Scotland and the rest of the UK with the less educated parents tending to leave the study proportionately more in Scotland. If MCS was a cross-sectional survey, this could be more of a problem than it is in a longitudinal survey where the first wave data can be used in differential weighting of the more recent data to restore distributions of key variables such as parents' education to their original form. However, the differential drop-out is a research challenge that needs to be met. Why more Scottish parents drop out needs to be understood and remedial action taken to avoid an accumulating bias as the survey proceeds.

4.15 For future cohort studies, following the example of the MCS, there is therefore still a very strong case, in terms of cost effectiveness, for building in a substantial Scottish boost from the outset. This could be usefully coupled with the inclusion of a 'core' module translated into, or devoted specifically, to the Scottish context. A strong case has been made for a new birth cohort study to be launched in the UK in 2012/13. This would be the opportunity to ensure that, as with MCS, any such cohort study had adequate numbers for independent Scottish analysis and that all potential sources of bias, including those identified with differential drop-out between England and Scotland, are controlled.

4.16 The advantage of the cohort studies, as with potentially UKHLS, is that bridging the 30 year gap in the national series - 1946, 1958, 1970, 2000 - they span a long historical period enabling study of the effects of socio-economic and policy change on outcomes in cohorts born at different times at different stages in the cohort members' lives. Even the 30 years gap in the historical record between 1970 and 2000 can be bridged, at least in part for England, through the Avon Longitudinal Study of Parents and Children (ALSPAC) - 1992 birth cohort) and the Longitudinal Study of Young people (LSYPE - 1990 birth cohort). Such a record is not only of historical interest but valuable in policy terms because it supplies baselines for the effects of policy change the outcomes of which are important for future policy

development. Thus the termination of the 11 plus in most, but not all, Local Authorities in England gives the opportunity to assess, using cohort study data, the effects of selective as opposed to comprehensive schooling on long-term adult outcomes³⁴. To build routinely a Scottish dimension into such comparisons would be immensely valuable. Hence investment in the studies continues to be a high priority.

(iii) Specialist studies

4.17 Turning to the more specialist studies, three area-based studies stand out as being particularly important in relation to the National Outcomes :

- In the policy domain of health, the West of Scotland 2007 study offers much potential for research' - within a multilevel framework, with potential generalisation of findings across the whole of the UK.
- The Edinburgh study of youth transitions and crime is an immensely rich data set linking administrative data into an annual data collection on young people's offending behaviour, set against a wide range of other characteristics for which data have been collected.
- The Go Well study in Glasgow with a strong health theme offers comparable insights into the basis of community development in deprived areas.

4.18 There is much uncertainty, however, about the future of all these studies – none of which feature in the UK National Data Strategy. The Edinburgh study is, for example, currently suspended through lack of funding, just at a time when it could do much to illuminate entry into adult criminality and desistance from it. Similarly the Medical Research Council - funded the West of Scotland Study, with much area level as well as individual data, has reached the end of its programme. Both these studies offer exceptionally rich opportunities for longitudinal research in an area of key policy importance – 'lives safe from crime, disorder and danger'. The infrastructures built to maintain these studies would also not be easy to reconstruct. There is a strong case for facilitating their continuation through new investment.

4.19 The Go Well Glasgow study run by a consortium of organisations including The University of Glasgow, Communities Scotland, NHS Scotland and Glasgow City Council is a multifaceted longitudinal programme of much relevance to the Health, Community, Public Services and Inequalities National Outcomes. Doubts about generalisability need to be set against the richness of data supplying insights into the processes of community life. Apart from supporting continuation, when the need arises, there is a case for replicating the study in other Scottish cities.

³⁴ Steedman, J. (1983) Examination results in non-selective and selective schools: findings from the National Child Development Study, www.longviewuk.com/pages/documents/Steedmanreport

(iv) New studies

4.20 Policy areas neglected by those studies already mentioned relate to those outcomes, which we found it difficult to map onto existing longitudinal survey resources. The community, built and natural environment, outcomes and the related outcome to do with facilitating business growth are difficult to evaluate by means of existing national longitudinal survey data. The SLS with its massive 274,000 sample size is the only one that comes near but its coverage is limited to the census and registration data that it currently contains. The IDBR provides a good sampling frame for longitudinal studies of businesses and, by extension, the work force they employ. A review of administrative data sources would enable the potential for new studies devoted to these contexts to be adequately assessed.

Research Exemplar

Male worklessness and the rise of lone parenthood in Britain
Oxford Centre for Population Research Working Paper No 30
Robert Rowthorn and David Webster

De-industrialisation has eliminated many male jobs in Great Britain. Using geographical comparisons based on census data this project estimated the resulting fall in male employment explains between 38% and 59% of the 1.116 m increase in lone parent families over the period 1971-2000. The greatest impact was in the areas, which had suffered most from industrial decline. Census data was used to achieve sufficient numbers in the relevant statuses, but being cross-sectional could not address directly the flows in and out of them thus requiring very strong assumptions to infer causality. The new SLS and the UKLHS would enable a more penetrating analysis strengthening the robustness of the conclusions.

4.21 Mobility studies building from the Scottish longitudinal study could also be an important feature, offering the opportunity, through the UK-wide aspects of the study, to pursue migration into and out of Scotland in relation to migration across the whole of the UK.

4.22 With respect to new studies, the most obvious gaps in the longitudinal resource portfolio are in relation to business development, the rural environment and national identity. There is a case for scoping studies to assess the potential for new longitudinal surveys in these areas. Alternatively, if the cost of such investment in new studies is considered too high, gaining space in large scale studies like UKHLS for Scottish modules devoted to them could be the way forward.

(b) Longitudinal resource strategy

(i) Raising awareness

4.23 A common theme of our interviews with officials was the model of the evaluation process that relied primarily on the monitoring of outcomes (through indicators) in response to policy interventions. Discontinuities in the time series forming the administrative record could then be used to infer success or failure of the intervention. Similarly in the case of ongoing service provision, discontinuities in the

administrative record could again be taken to signify either improvement or deterioration.

4.24 The role of longitudinal research as such was seen as fairly marginal to these endeavours though in most interviews it was recognised that there could be an expanding role for it to play. The attraction is in the development of models that enable policy makers to gain insights into the likely effects of policy implementation options and to point directly to ways of developing new policy options. The key criterion is robustness relying on various strategies to increase confidence in findings such as triangulation across studies, and enough relevant variables in any given analysis to control for possible selection biases. In these terms the use of longitudinal research in the evaluation of the National Outcomes and through them the strategic objectives, rather than focusing on the specific monitoring indicators was seen as making a lot of sense.

4.25 Thus longitudinal studies that encompass a part of the life course - early years, youth, mature adulthood, old age - to which the policy question is directed can support the testing and development of a model linking experience and circumstances to outcomes. If, for example, variations in curriculum content and teaching strategy early on in schooling can be demonstrated to predict improved educational performance later, then investment in this development to shape more closely these process factors in the direction the model indicates are predicted to bring about improvements.

4.26 Cross-sectional data collected administratively or by dedicated surveys such as LFS, Family Resources Survey, National Crime Survey and so on may have a key role in policy monitoring at the level population as whole and in subgroups. By the follow up of particular age groups from one survey to the next 'pseudo cohorts' can be constructed, which can extend their scope further. However the key missing element will always be what gives longitudinal studies their particular strength - the response to policy at the individual level. We may observe from cross-sectional data the rise of employment rates following regeneration associated with the successful commonwealth games bid to be held in 2014 in East Glasgow, but without follow-up of individuals exposed to it in the area leading up to and following the games we cannot be certain who is getting the new jobs and how long they are retaining them.

4.27 However, despite investment in major longitudinal resources including GUS and the top-ups in the BHPS and the MCS, it is generally considered that these and other longitudinal resources are underexploited for policy purposes. The Office of the Chief Researcher organises a programme of in-house method training which includes enhancing understanding of longitudinal research possibilities for inclusion in all policy analysts' repertoires. But clearly there is a case for expansion, especially in policy areas where longitudinal research is not much in evidence.

Ruth Lupton

Institute of Education

Research Project: *The Association between Housing and Life Chances: Control Measures*

A good example of the use of longitudinal research for policy development is reflected in SG recent investment in a Scottish component of the further analysis of data collected on UK social housing in the 1946, 1958 and 1970 birth cohort studies. This follows preliminary results showing evidence of rising social exclusion among social housing residents in the more recent cohorts. The new analysis will supply through statistical modelling insights into the reasons for this phenomenon pointing to the features of social housing, including the attributes of those who use it, that need to be changed to reverse the social exclusion process.

(ii) Integrated approach

4.28 Raising awareness is central to the judgements that need to be made about investment in longitudinal research resources. Many of the surveys prioritised in the first part of the chapter address the interests of more than one department, but typically decisions about them and longitudinal investment strategy more generally will tend to be taken in isolation. Rather on the lines of the UK Data Strategy, there is much to be said for the development of longitudinal resources collectively to serve the whole of government and indirectly the academic community. This extends beyond support for a particular longitudinal survey to the linkage of administrative data that will add substantially to its value for policy purposes. The LSRN has effectively mapped longitudinal resources of relevance to Scotland and would appear to supply good foundations for such a development.

(iii) Administrative data linkage

4.29 Another theme that has arisen repeatedly through the study is the role of administrative data, either linked across different sources - where Scotland may have the legislative advantage over England - or to major longitudinal studies like the Household Panel Surveys, the Birth Cohort Studies or local areas studies like Go Well Glasgow. Subject to the necessary data protection and confidentiality requirements being met and appropriate quality controls on the data itself such linkage will add considerable value to what is available currently within any one research source.

4.30 As recognised in the UK National Data Strategy, administrative data offers a rich and largely untapped resource for longitudinal research, especially through linkage to ongoing longitudinal studies. In some cases, such as WPLS, the data is already organised in the form of a longitudinal data set for use under controlled conditions by researchers. In other cases such as Criminal Justice records, for example, recording inconsistencies may limit current use. The prime example of the benefits to be gained potentially from data linkage is the Scottish longitudinal census-based study (SLS). Census information on the 274,000 individual records and the vital events such as births and deaths attached to them can be seen as just the first stage of administrative data linkage. Expanding this linkage to such datasets as AAP/SSA, AHEPD, IDBR, WPLS, SCORE, and so on, would produce much added value. It could also support implementation of one of the recommendations emerging from the work of the expert group namely the development of the SLS

resource as a sampling frame to assist in the identification of special area level sub samples, either for longitudinal surveys or for qualitative case study purposes.

4.31 Clearly there are major issues to be resolved in such a development especially in connection with data protection, disclosure and access, all of which needs much detailed appraisal. However in this instance much work has already been done through the UK National Data Strategy on which Scottish access policy can capitalise. In fact the Director of the SLS led the scoping work for ESRC on which current policy is largely based³⁵. Scottish Government strategy could sensibly mirror that suggested for longitudinal survey resources - namely integration of data needs and the procedures for linking and using them through a single cross-government plan.

(iv) Local factors

4.32 The relevance of particular data sources to policy delivery and outcomes at local as opposed to national level was a common theme in all our interviews. The tension between locally developed monitoring indicators and the need for standardisation to understand the operation of policy across the country as a whole in a sense parallels the operationalisation of the National Outcomes and needs to be addressed, not least because it could inform the coverage of multipurpose surveys such as GUS. Where is the right balance to be struck without limiting the requirements at both levels? National evaluation requires standardized measures but the local context needs to be accurately reflected in the assessment of performance for local purposes. An extended period of dialogue will be needed until agreement about an optimum set of indicators to meet both purposes is reached.

4.33 This brings back the issue of measurement. The national performance framework offers a comprehensive approach to measuring performance in terms of 15, in some ways, rather general outcomes without tying performance down to specified targets. It has become clear, however, in talking to specialists in the different policy fields, of which housing is a particular example, that some National Outcomes need further development in perhaps new directions to encompass better the policy intention. Some outcomes link relatively loosely to the five strategic objectives that inform the whole performance framework. Others such as those concerned with national identity, the natural environment and 'Greener Scotland', are difficult to operationalise using existing longitudinal resources. Much of the drive for such development of the performance network again comes from the negotiations locally over the 'Single Outcome Agreements'. As some of our informants saw it there needs to be a continual flow of influence up and down the levels of the whole system, which takes further the specification of the strategic objectives and their linkage to specific outcomes as set out in Figure 1.1 and the means of measuring them.

³⁵ Boyle PJ, Cullis A, Flowerdew R and Gayle V 2004 UK Data Audit Phase I, Report to the ESRC Research Resources Board; Boyle PJ, Cullis A, Flowerdew R and Gayle V 2004 UK Data Audit Phase II, Report to the ESRC Research Resources Board; Boyle PJ, Cullis A, Feng Z, Flowerdew R and Gayle V 2004 Adding Geographical Variables and Identifiers to Longitudinal Datasets, Report to the National Longitudinal Strategy Committee and ESRC

4.34 A model for research in this framework is offered by the Glasgow Go Well study where Glasgow University's Department of Urban Studies and local and national government agencies have combined forces to launch a longitudinal study of disadvantaged communities in Glasgow with the focus on housing and health. This kind of collaboration which can also play an important part in capacity building (last section), could be replicated in other cities.

(v) Comparative analysis

4.35 Countering our initial approach of classifying studies and data sources in terms of their 'Scottishness' were the strong arguments put to us about the advantage of comparative analysis at every level of the system. Comparison of data between areas, between regions and between countries within the UK and across Europe for individuals and the communities of which they are members offers opportunities for natural experiments to test the relationship between exposure to different policies and their predicted outcomes.

4.36 The comparative framework includes policy outcome comparisons with other countries of the United Kingdom, in which UK-wide studies, such as the Household Panel studies, the British Cohort Studies and SLS, are particularly valuable. Comparisons can also extend to countries across Europe. Development of a Scottish study of aging on the lines of ELSA opens up the possibility of joining the 15 country Study of Health Retirement in Europe (SHARE) comparative study which is seen as a model for this kind of cross-national research. The BHPS is already part of a five country comparative study based on a harmonized household panel data set (the "Cross National Equivalent File"³⁶) involving the USA, Canada, Germany and the UK from which Scottish policy could benefit.

4.37 Within Scotland itself, there is merit in building as much complementarity and harmonisation between national and local measurement as possible through the development of multi level modelling design frameworks. Initially these would be based on administrative data, making the case again for the cross data source linkage that this requires. Such large-scale studies as the LFS, the new UKHLS and the MCS, with its multi level design and the Edinburgh (Youth Transitions and Crime), Glasgow (Go Well) and West of Scotland (07) longitudinal studies also have a role to play in adding richness to the data in particular subject areas and localities.

4.38 A specifically Scottish study like GUS has much value in supplying context and detail for measurement that is unlikely to be present in UK wide-studies. Hence the ideal solution appears to be a balance between the two sources: UK-wide, Scottish national and Scottish area-based longitudinal data. The 270,000-strong census-based SLS, modelled on its English counterpart the LS meets this requirement, while having the distinctive Scottish features that increase its value for Scottish policy purposes.

³⁶ <http://www.human.cornell.edu/che/PAM/Research/Centers-Programs/German-Panel/cnef.cfm>

(c) Capacity and capability

4.39 Finally we return to an issue that has arisen earlier in this chapter and was raised repeatedly in collecting the evidence for the study is capacity. This operates at two levels:

- provision of longitudinal data to support evaluation wherever needed
- the human resources, including capability, time and technical backup to make the most effective use of the data

4.40 The first of these depends on the development of the comprehensive longitudinal research strategy suggested earlier and policy governing it to ensure availability of data to match research need. The success of the strategy also requires expertise at every stage of the production process through longitudinal survey design, data collection and analysis, backed by relevant software and expertise in using it. This applies as much in the commissioning of longitudinal research as in conducting it. The office of the Chief Researchers programme of in house training goes some way in this direction, but could usefully expand to take advantage of the new opportunities a national strategy provides. Investment in training in such areas as longitudinal survey methods and statistics may thus be seen as an essential counterpart to investment in longitudinal resources.

4.41 Much research will inevitably be contracted out under the pressure of time and resources. In the area of Health for example much work is done by NHS Health Scotland. Hence capacity building is not restricted to Government, but to all engaged in using longitudinal data, i.e. in the government agencies, the private and voluntary sectors and the universities all of whom undertake commissioned work for government.

4.42 Scotland has a proud record in quantitative social and economic scientific research, including pioneering longitudinal enquiries such as the Aberdeen study and the SSLS. But as in most academic fields capability to undertake and especially analyse the results of longitudinal research has not expanded adequately to meet the new demands. There are major initiatives by ESRC, mainly based in England, to build capacity such as the National Centre for Research Methods (NCRM) with a 'Hub' in Southampton and six 'Nodes', none of which are in Scotland. The Welsh administration has expanded the funding for the node of the Centre based in Cardiff. There is also the Research Development Initiative (RDI) comprising novel methods training activities in new research areas. It is important for the Scottish Government to link to and invest in such infrastructure development to meet Scottish needs. Joint studentships linking government and academic research interests' through on the collaborative CASE model under ESRC's Knowledge Transfer programme are already in place in Scotland and could usefully be extended further.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Through the rich array of evidence collective across the spectrum of government and stakeholder research interests and research resources, the study has revealed the value of, and pressing need, for enhanced longitudinal research resource development and use in Scotland. The parameters for such expansion are set by the new national performance framework (chapter 1). The agreements around this framework offer opportunities to meet more effectively Scottish Government policy needs while lending the framework itself to evaluation through this expanded research resource.

5.2 The conclusions set out below draw together judgments drawn from the different sources of evidence examined, including the views of senior Government officials and other experts that we talked to. The documentary sources comprised the descriptions of the 29 longitudinal studies and administrative databases supplied by the teams responsible for them and examples of their use. These were summarised in relation to National Outcomes to which they bear most direct relevance (Chapter 2) and formed the basis of the vignettes, which set out different scenarios for their use illustrated, where appropriate, by research exemplars (Chapter 3). The vignettes and the summaries constitute a useful resource for identifying the datasets of most relevance to particular outcomes and the forms of analysis likely to be most useful, i.e. the report as whole can be viewed as supporting a clearing house for a series of research agendas. Issues that need to be resolved to get most value from the investment in longitudinal research resources. These come together in the proposed national strategy for longitudinal resource development and capacity building (Chapter 4).

(a) Investment

5.3 Table 5.1 provides an overall summary linking studies/resources to outcomes and identification of gaps.

Table 5.1 Research relevance and use

Policy domain	Performance Outcome	Measures	Design	Longitudinal data sources	Gaps
Economy	Good place for business Employment opportunities	Business growth, profitability Work history	Multilevel Individual and Area-business-based	IDBR,WPLS WERS, ASHE LFS, BHPS/UKHLS	Longitudinal survey of businesses and employees Youth transitions
Education and Life Long Learning	Educated and skilled Successful learners Good start in life	General and vocational qualifications Capabilities – engagement Cognitive and behavioural skills tests	Population Multilevel Individual Area-School-based	LFS, SSA,SSLS GUS,MCS NCDS BCS70 Careers guidance BHPS/UKHLS	Youth transitions
Health	Longer healthier lives	Mortality & morbidity Healthy life style	Population Older age groups Birth and age cohorts	SLS WoS MCS, BCS70, NCDS BHPS/UKHLS	Scottish longitudinal study of ageing equivalent to English ELSA
Protection	Families and children free of risk Free of crime and disorder	Crime rates Experience	Multi-level Individual Area-based	GWG ESYTC WoS	Follow-up of ESYTC
Community and public services	Sustainable place Resilient High quality	Housing Experience	Multi-level Individual Area-based	GWG NCDS, BCS70	Replication of GWG
Environment	Value and enjoy Reduce impact of consumption	Quality of life rural/urban	Population	SLS GWG, WoS SCORE SHARP	Rural longitudinal study Migration
Inequalities	Fairer	Earnings Qualifications Health Housing Quality of life	Population	BHPS/UKLHS, NCDS BCS70	Cross-cutting issue in all policy areas, so no need for any new studies required other than those suggested above
Identity	National identity	Attitudes and values	Population	-	Module in UKHLS (?)

5.4 Table 5.1 points to five kinds of longitudinal data resources of particular relevance to the evaluation of most of the National Outcomes grouped with the exception of reducing inequalities (applying to all of them) and developing national identity (not covered by any of them) in terms of 6 policy domains and merit sustained investment:

- (a) the Scottish national studies, GUS and SSLS (replacement) and the SLS – education and life long learning, health, environment, inequalities
- (b) the major Scottish area based studies, West of Scotland, Edinburgh, Go Well Glasgow, health, community and public services, environment, protection/safety, inequalities the
- (c) Household Panel and Birth cohort Studies, BHPS/UKHLS, BCS, NCDS - economy, education and Life long learning, health
- (d) (potentially) the Scottish ELSA (the need for which is currently being scoped), health, economy, inequalities community and public services
- (e) administrative data sources such as IDBR, WPLS, ASHE –(economy); SSA, careers guidance (education and life long learning); SCORE, (environment, community and public services)

5.5 Gaps are evident that need to be filled if all 15 National Outcomes are to be supported by longitudinal research

- (a) longitudinal survey of businesses and employees building on the IDBR and linked to WPLS
- (b) longitudinal study of rural community life and migration
- (c) (Scottish) modules on identity, rurality and crime (UKHLS)

5.6 Give high priority to improved linkage between and access to administrative datasets in a national database and develop facilities for linking this dataset to the key longitudinal studies at national and local level.

(b) Strategy

5.7 Consciousness needs raising within all policy divisions of the value of longitudinal research for policy development and evaluation.

5.8 Develop a comprehensive evaluation strategy that embraces performance at all levels from national to local service delivery utilising developments at all levels to support continual review and updating of the whole structure.

5.9 As all National Outcomes can be linked directly or indirectly to all the surveys reviewed, there needs to be cross-government agreement about strategy for longitudinal resource development to share the costs in a coordinated plan.

5.10 At local area level base longitudinal research strategy on a few studies designed in terms of a multi-level framework to avoid dissipating resources over a large number of disparate studies.

5.11 Support UK national studies with a Scottish boost component principally for the testing of systemic and policy differences between Scotland and other countries

in the UK, and general descriptive statistics. Use local longitudinal studies to understand the links between policy inputs, processes of delivery and achievement of outcomes.

5.12 Within Scotland build as much complementarity between national and local measurement as possible through the development of multi level design frameworks embracing, below national level, local authorities, school catchment areas and neighbourhoods, to ensure that institutional and contextual effects can be identified in the modelling of the delivery system.

5.13 Exploit to the full the research opportunities offered by the concordat around the development of Single Outcome Agreements through the production of accompanying longitudinal resources at national and local level and collaborative research agreements.

5.14 Develop further the operationalisation of the National Outcomes to make evaluation more rigorous and unambiguous. Thus certain major policy areas like housing need to be built more specifically into the outcomes as a basis for identifying a set of indicators that are most appropriate to the outcome.

(c) Capacity

5.15 Develop the capacity for local research and evaluation, including the recognition of the value of disaggregated national datasets and administrative data, for linkage to local indicators.

5.16 Strengthen links between academic research departments with longitudinal research capability and local Government as in the Glasgow based *Go Well* study.

5.17 Develop the capacity of the system for “natural experiments” by, wherever possible, staggering the introduction of new policy interventions in different places, to supply the basis for “waiting room” controls, in which over time everybody receives the intervention.

5.18 Ensure that baselines are in place nationally and locally via surveys and geographical and administrative data to ensure that all new policy developments and interventions start with prior knowledge of the outcome indicators.

5.19 Develop evaluation capability both within Scotland, but also contribute to its enhancement across the UK and internationally, by seeking collaborative arrangements to develop common cross-national datasets around themes such as ageing, child development and community development.

5.20 Invest in capacity building:

- in Government to develop and use longitudinal resources in the form of surveys and administrative data to support evaluation in all policy domains in the most effective way and ensure their accessibility to the research community as a whole.

- in the universities through linked studentships, i.e. through a Scottish-wide PhD programme in the social, developmental and economic sciences, for which the national PhD programme in Economics is the exemplar, linking these to the recently announced HEFCE support for one year MSc courses.
- in the research community more widely through the Hub–Node infrastructure of the National Centre for Research Methods by following the Welsh Assembly example of investing in a Scottish ‘Node’

APPENDIX 1 TABLE A1 EXPERTS CONSULTED

Interviews

Dr Jane Elliott – PI BCS70 and NCDS

Professor Ken Gibb, Director Department of Urban Studies, University of Glasgow

Gary Gillespie – Head of OCEA FSG (Finance and Economics) – pending

Aidan Grisewood Head of Communities ASD

John Ireland – Head of Education ASD

Professor Heather Joshi –Director of CLS, IoE and PI MCS

Ian Sanderson Director Analytic Services

James Sheffield Head of Justice ASD

Jill Vickerman – Head of Health ASD

Rebekah Widdowfield, Head of Rural and Environment ASD

Rob Wishart Chief Statistician Analytic Services

Expert Group

Professor David Bell – Stirling

Professor Paul Boyle – St Andrews

Professor Andy Furlong Glasgow

Dr Vernon Gayle – Stirling

Professor Lindsay Paterson – Moray House, Edinburgh

Professor David Raffe – Moray House, Edinburgh

APPENDIX 2 NATIONAL PERFORMANCE OUTCOMES UNABBREVIATED

1. We live in a Scotland that is the most attractive place for doing business in Europe
2. We realise our full economic potential with more and better employment opportunities for our people
3. We are better educated, more skilled and more successful, renowned for our research and innovation
4. Our young people are successful learners, confident individuals, effective contributors and responsible citizens
5. Our children have the best start in life and are ready to succeed
6. We live longer, healthier lives
7. We have tackled the significant inequalities in Scottish society
8. We have improved the life chances for children, young people and families at risk
9. We live our lives safe from crime, disorder and danger
10. We live in well-designed, sustainable places where we are able to access the amenities and services we need
11. We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others
12. We value and enjoy our built and natural environment and protect it and enhance it for future generations
13. We take pride in a strong, fair and inclusive national identity
14. We reduce the local and global environmental impact of our consumption and production
15. Our public services are high quality, continually improving, efficient and responsive to local people's needs

APPENDIX 3 SUMMARIES OF STUDIES ANALYSED BY NATIONAL OUTCOMES

Annual Survey of Hours and Earnings Panel Dataset (formerly New Earnings Survey Panel Dataset) (ASHEPD)	114
British Cohort Study (BCS70)	116
British Election Panel Study (BEPS)	118
British Household Panel Survey (BHPS)	120
Children of the 1950s (Aberdeen study)	122
Edinburgh Study of Youth Transitions and Crime (ESYTC)	124
Families and Children Study (FACS)	127
General Household Survey (GHS)	129
Go Well Glasgow (GWG)	131
Growing Up in Scotland (GUS)	134
Healthy Old People in Edinburgh Study (HOPE)	137
Inter-Departmental Business Register (IDBR)	138
Labour Force Survey (LFS)	140
Life Opportunities Survey (LOS)	142
Longitudinal Study of Refugees (LSR)	144
Millennium Cohort Study (MCS)	145
National Child Development Study (NCDS)	148
National Study of Health and Growth (NHSG)	152
Scottish Continuous Recording System (SCORE)	154
Scottish Health, Housing and Regeneration Project (SHARP)	155
Scottish Longitudinal Study (SLS)	157
Scottish School Leavers Study (SSLS)	159
Scottish Survey of Achievement (SSA - formerly Assessment of Achievement Programme)	161
UK Household Longitudinal Study (UKLHS)	164
Wealth and Assets Survey (WAS)	167
Workplace Employee Relations Panel Survey (WERS)	169
West of Scotland 11 – 16 & 16+ Study: Teenage Health (WoS1116)	171
West of Scotland Twenty-07 Study (WoS 2007)	174
Work and Pensions Longitudinal Study (WPLS)	177

Annual Survey of Hours and Earnings Panel Dataset (formerly New Earnings Survey Panel Dataset) (ASHEPD)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness
<p>We realise our full economic potential with more and better employment opportunities for our people</p> <p>We live in a Scotland that is the most attractive place for doing business in Europe</p>	<ul style="list-style-type: none"> o Job details – occupation and industry, full-time/part-time o Gross weekly and annual earnings o Make-up of total earnings (split between basic pay and other components such as overtime and bonuses) o Hours worked and hourly earnings o Location of home and work – travel to work area o Pension details – type of pension and contributions by employer and employee. o Duration of employment o Change in employment o Change in hours and earnings 	<p>At the level of employee: Sex, full-time/part-time employment, region, occupation, industry, weekly and annual earnings</p>	<p>The Annual Survey of Hours and Earnings (ASHE), formerly the New Earnings Survey (NES), is an ongoing statutory survey conducted under the Statistics of Trade Act 1947. Its sample each year comprises employed adults in the UK whose National Insurance (NI) numbers end with a specified pair of digits.</p>
			<p>As the same pair of digits has been used since 1975 the panel dataset comprises data on employees earnings linked by NI number over time. Questionnaires are completed in confidence, on an annual basis by employers on employees.</p> <p>In any one year, cross-sectional data is available on approximately 170,000 individuals – equivalent to a 1% sample of all those with a National Insurance number. From 1975-1997 information is available on just under 500,000 individuals.</p> <p>The total Scottish sample is around 12,500 in any one year. However, the number of individuals for whom longitudinal data is available, and the</p>

time coverage of that data, is unclear.

Most of the published ASHE analyses relate to full-time employees on adult rates whose earnings for the survey pay period were not affected by absence. They do not include the earnings of those who did not work a full week, and whose earnings were reduced because of sickness, short time working, etc. Also they do not include the earnings of employees not on adult rates of pay, most of whom will be young people.

British Cohort Study (BCS70)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>Our children have the best start in life and are ready to succeed.</p>	<ul style="list-style-type: none"> o Parental attitudes to schooling, discipline etc. o Reading at home o Nursery (including preschool) experience, o School experience 	<p>Age of mother at birth, marital status of mother, employment status of parents, age and sex of cohort member, educational qualifications of parents and child</p>	<p>The 1970 British Cohort Study (BCS70) is a continuing, multi-disciplinary longitudinal study which takes as its subjects a sample of individuals living in England, Scotland and Wales who were born in one particular week in April 1970. Up until 1996, the study was funded by a variety of Government departments, including the Scottish Office. In 2000, BCS70 received half it's funding from a range of Government departments and half from the ESRC. In 2004 the project was solely funded by the ESRC.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> o Educational qualifications of parents and child, o Nursery (including preschool) experience o School experience 	<p>Variables can also be constructed at the household level, or for the parents.</p>	
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Parental income and employment o Age of mother at birth o Housing and accommodation o Child health and well-being o Parental health and well-being o Parental health behaviours 		
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> o Housing and accommodation (including tenure, amenities, sleeping arrangements) 		
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Experience of ante-natal care (by mother of cohort child) 		<p>The initial sample included just under 17,200 babies. Since 1970 there have been six attempts to gather information from the whole cohort (1975, 1980, 1986, 1996, 2000 and 2004). Selected sub-samples have also been studied at various ages.</p>

<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> ○ Smoking during pregnancy for mother ○ Obstetric histories and very detailed pregnancy illness ○ Abnormalities and test results for mother ○ Detailed birth records (including length of each stage of labour and abnormalities), ○ Immunisations received by child aged 5, hospital admissions, operations and medical conditions ○ Accidents ○ Sight and speech difficulties ○ Disabilities 		<p>The original Scottish sample comprised 1,617. At the most recent sweep of fieldwork in 2004, around 70% of the original sample were issued (1100 Scottish cases) and overall response was 75%. This would return data on a Scottish sample of around 850 individuals.</p>
<p>We value and enjoy or built and natural environment and protect it and enhance it for future generations</p>	<ul style="list-style-type: none"> ○ Housing and accommodation 		<p>The future of the study is now more certain following the long-term funding of CLS, who run the study, as an ESRC Resource Centre. The forward plan for BCS proposes follow-ups every 4 years alternating face-to-face and telephone/postal surveys. The 2008 survey is being conducted by telephone/post.</p>

British Election Panel Study (BEPS)

Relevant National Outcomes	Suggested variables	explanatory	Demographic Controls	Comments on: Analysis, Representativeness
<p>We take pride in a strong, fair and inclusive national identity</p>	<ul style="list-style-type: none"> o Views on Scottish independence and devolution o National identity including why people feel Scottish, Scottish vs British identity, religious conflict in Scotland, what makes people proud of Scotland o Discrimination (religion, sex and sexuality). 	<p>Socio-economic class, age and sex, employment status, relationship status, car ownership, educational qualifications, ethnicity, religion, income</p>	<p>The British Election Panel Study comprised two separate, ESRC-funded panel surveys of a sample of individuals in Britain who were eligible to vote in the 1992 and 1997 General Elections.</p>	
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> o Voting and apathy among young voters 		<p>The panel members were followed throughout the course of the subsequent parliament. The first panel ran from 1992-1997, and the second from 1997-2001. Each included 8 waves of data collection combining face-to-face, telephone and postal surveys.</p>	
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> o Housing and tenure 			
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Perceptions of the NHS o Perceptions about quality of education system 			
<p>We live our lives safe from crime, disorder and danger</p>	<ul style="list-style-type: none"> o Perceptions of crime 		<p>BEPS-1 had an initial sample of 3534 (957 of which were in Scotland) which was diminished to 1924 at the end of the final wave (500 of which were in Scotland). BEPS-2 achieved 3534 initial interviews (882 of which were in Scotland) and 2482 final interviews (including 680 in Scotland).</p>	

				A panel was not established for the 2001 General Election nor any subsequent election.
--	--	--	--	--

British Household Panel Survey (BHPS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
Our children have the best start in life and are ready to succeed.	<ul style="list-style-type: none"> ○ Technology use at home ○ Family life and parenting ○ Educational qualifications and school experience of children in the household 	Place of birth, ethnicity, educational qualifications, employment, marital status, income, socio-economic classification, number of people in the household, number of children, vehicle ownership,	The British Household Panel Survey (or 'Living in Scotland' as the Scottish panel is known) is an ESRC-funded, general purpose longitudinal study of individuals living in private households.
Our young people are successful learners, confident individuals, effective contributors and responsible citizens	<ul style="list-style-type: none"> ○ Expectations of relationships and marriage in the future ○ Aspirations of young people for the future ○ Educational qualifications 		Launched in 1991, the study collects data annually by undertaking face-to-face interviews with every adult member (aged 16 or over) in the household. Since 1994, children aged 11-15 in sampled households have also provided data via a self-complete questionnaire (known as the 'British Youth Panel'). Members who split-off from a household are re-interviewed in their new household with all its members.
We have improved the life chances for children, young people and families at risk	<ul style="list-style-type: none"> ○ Wealth, assets, debts and sources of income ○ Own and friends involvement in crime/delinquency (youth panel) ○ Family characteristics, family life and parenting ○ Children's relationships with their parents (youth panel) ○ Household employment status and economic activity ○ Neighbourhood characteristics 		It has a British sample of around 5,000 households and 10,000 individuals. The Scottish sample, boosted in 1999, comprises 1,500 households and 3,000 adults.
We live in well-designed, sustainable places where we are able to access the amenities and services we need	<ul style="list-style-type: none"> ○ Neighbourhood satisfaction ○ Housing conditions and tenure 		
Our public services are high quality, continually improving, efficient and responsive to local	<ul style="list-style-type: none"> ○ Contact with of health services including GPs, hospitals etc. 		

<p>people's needs</p> <p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> ○ Fertility ○ Self-reported general health and standardised health assessments (SF36) ○ Disability ○ Health tests taken (eg dental, blood pressure, cervical smear) ○ Ageing, family support, health and quality of life for older people ○ Stress at work ○ Smoking ○ Contact with health services 	<p>At Wave 15, some form of response was achieved for approximately 87% of eligible households. At the individual level, 53% of original sample members were interviewed overall. In Scotland, this equates to information on around 1000 households and 1,500 individuals at Wave 15. Exact numbers are not readily available.</p>
<p>We realise our full potential with more and better employment opportunities for our people.</p>	<ul style="list-style-type: none"> ○ Lifetime economic activity history ○ Professional qualifications ○ Stress at work and satisfaction with work ○ Educational qualifications 	<p>The study has ESRC funding up until 2009. By 2009, a total of 18 years of panel data will be available. The existing BHPS sample will then be incorporated in the larger sample of the UK Household Longitudinal Study.</p>
<p>We are better educated, more skilled and successful, renowned for our research and innovation</p>	<ul style="list-style-type: none"> ○ Perceptions of crime in neighbourhood ○ National identity ○ Views of devolution and Europe 	
<p>We live our lives safe from crime, disorder and danger</p>	<ul style="list-style-type: none"> ○ Attitudes towards the Government's role in protecting the environment. 	
<p>We take pride in a strong, fair and inclusive national identity</p>		
<p>We value and enjoy our natural and built environment and protect it and enhance it for future generations.</p>		

Children of the 1950s (Aberdeen study)

Relevant National Outcomes	Suggested explanatory variables	Explanatory variables	Comments on: Analysis, Representativeness Sample,
We realise our full potential with more and better employment opportunities for our people.	<ul style="list-style-type: none"> o Employment and occupation 	Employment and parental characteristics, sex, number of siblings, age of mother, social class and educational qualifications	Jointly funded by the MRC and the Chief Scientist Office, the 'Children of the 1950s' has followed a cohort of children born in Aberdeen between 1950 and 1956 and who were at school in the city in 1962 or 1964.
We are better educated, more skilled and successful, renowned for our research and innovation	<ul style="list-style-type: none"> o Educational qualifications, IQ, reading ability at age 7,9 and 11 o Employment 		
Our young people are successful learners, confident individuals, effective contributors and responsible citizens	<ul style="list-style-type: none"> o Educational qualifications, IQ, reading ability at age 7,9 and 11 o Employment 		
Our children have the best start in life and are ready to succeed	<ul style="list-style-type: none"> o Pregnancy and birth of cohort child, birth weight, gestational age o Educational qualifications, reading ability o Height and weight measurements o Birth weight of female cohort members' children. 		The study is based initially on a survey carried out in December 1962 of all Aberdeen primary school children born between 1950-56 (total sample: 12,150). These children took standardised reading tests and provided information about parental occupation and number of siblings. Attainment information at ages 7, 9 and 11 years was obtained from school records, as was data on height and weight. A wide range of data on maternal characteristics (including height and age), the pregnancy and birth was taken from the Aberdeen Maternity
We live longer, healthier lives	<ul style="list-style-type: none"> o Mortality o Height and weight measurements o Fertility and health during pregnancy of female cohort members, o Lifestyle behaviours (smoking and binge drinking) o Strokes and coronary heart disease o Adult mental health. 		

<p>We have tackled the significant inequalities in our society.</p>	<ul style="list-style-type: none"> ○ Employment ○ Educational qualifications, ○ Social class ○ Lifestyle behaviours ○ Health status including morbidity, height and weight, strokes and coronary heart disease 	<p>and Neonatal Databank.</p> <p>In 2004, this early data was supplemented with data from a postal survey of surviving and traceable respondents – over 7000 were contacted at this time. Various health and socio-economic data on cohort members available from centralised National Health Service databases has also recently been linked in. Given that the vast majority of data is administrative, there are few problems associated with non-response or attrition.</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> ○ Birth weight, gestational age, ○ Height and weight measurements ○ Educational qualifications 	<p>There is no information on future plans for the study.</p>

Edinburgh Study of Youth Transitions and Crime (ESYTC)

Relevant National Outcomes	Related variables	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We realise our full economic potential with more and better employment opportunities for our people</p>	<ul style="list-style-type: none"> o Employment patterns at ages 16, 17 and 18 o The next planned sweep of data collection will collect this information for the period 18-23 years 	<p>At the individual level – age, sex, family composition, ethnicity, parental employment, income and socio-economic classification (from a separate, but linked survey of parents), and other socio-economic measures including area deprivation.</p>	<p>The Edinburgh Study focuses on a single cohort of 4,317 young people who started secondary school in Edinburgh in the autumn of 1998. Pupils from state mainstream and special schools, and independent schools were all recruited for the study. The study has been funded by the ESRC, the Scottish Government and the Nuffield Foundation.</p>
<p>We are better educated, more skilled and more successful, renowned for our research and innovation</p>	<ul style="list-style-type: none"> o Information on school-level educational qualifications taken from school records o Also information on school attendance and reasons for absence – also taken from school records o Planned future sweeps will obtain information on further and higher educational qualifications 	<p>As well as these measures, the Edinburgh Study team have used a range of other explanatory variables whilst modelling different types of offending behaviour – measure of personality, peer influence, parenting styles and attachment to school for example – many of which could be extended to explanatory models examining non-offending related outcomes.</p>	<p>Annual data collection via self-completion paper questionnaire (in a classroom setting) was undertaken for the 1st 6 years (age 12-18). The original sample represented 89.1% of all first year pupils eligible to have taken part. Response was extremely high at all sweeps. Questionnaire data is supplemented by comprehensive data from social work, children’s hearings and police juvenile liaison officer files and from the Scottish Criminal Record Office (which included all</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> o Measures of self-esteem, impulsivity and alienation o Educational and employment aspirations o Relationship with parents o Relationship with friends o Educational attainment and school attendance data o Teachers questionnaire 		
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> o Various measures of adolescent physical and mental health including: general health, dieting and weight-related illness, 		

<p>We have tackled the significant inequalities in Scottish society</p>	<p>worries, coping mechanisms, self-harm, smoking, drinking and drug use,</p> <ul style="list-style-type: none"> o Access to the internet o Contact with criminal justice agencies 	<p>offences up to age 19). The next phase of fieldwork is planned for 2009 when cohort members will be 22-23. However, funding has not yet been secured. In 2007, the Scottish Government funded a 'Sample Safeguarding Exercise' the principal aims of which were to make contact with cohort members (mainly by post), confirm or update contact details and collect some brief information on their current circumstances. Further details are available in McVie, S., Palmer, J. and McAra, L. (2007) <i>Edinburgh Study of Youth Transitions and Crime: Report on Sample Safeguarding Exercise.</i></p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Particularly detailed information about young people at risk including data from social work and children's hearings records o Particular at risk groups possible to identify include persistent substance users and offenders 	
<p>We live our lives safe from crime, disorder and danger</p>	<ul style="list-style-type: none"> o Detailed self-report data on individual's involvement in delinquency and offending behaviour – various levels of delinquency covered from graffiti and vandalism to robbery and fraud. o Administrative information on offending and criminal justice intervention from Police Juvenile Liaison Officer files, Scottish Children's Reporter Administration records and Scottish Criminal Records Office 	
<p>We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others</p>	<ul style="list-style-type: none"> o The study has a strong neighbourhood component and links in various area-level census variables to the individual survey dataset. A 	<p>A significant amount of analysis has already been undertaken on the data involving the application of multi-level modelling and other advanced statistical techniques. The majority of this work is centred around the main themes of the programme – i.e. understanding patterns of offending, and the effect of the</p>

<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<p>detailed area deprivation index has been created at a specific geography designed exclusively for the study. A 'Communities Survey' of Edinburgh neighbourhoods has also been undertaken allowing the measurement of a number of key concepts particularly in relation to a communities response to youth crime and anti-social behaviour</p> <ul style="list-style-type: none"> o Attendance at youth clubs, sports clubs and leisure centres o Effectiveness of youth justice and welfare systems and processes 	<p>interaction with formal justice systems.</p> <p>The most recent full round of data collection on the study was undertaken in autumn/winter 2003. The next phase of fieldwork is planned for 2009 when cohort members will be 22-23. However, funding has not yet been secured. In 2007, the Scottish Government funded a 'Sample Safeguarding Exercise' the principal aims of which were to make contact with cohort members (mainly by post), confirm or update contact details and collect some brief information on their current circumstances. Further details are available in McVie, S., Palmer, J. and McAra, L. (2007) Edinburgh Study of Youth Transitions and Crime: Report on Sample Safeguarding Exercise.</p>
--	--	--

Families and Children Study (FACS)

Relevant National Outcomes	Related variables or topics	Explanatory variables	Comments on: Analysis, Representativeness
<p>Our children have the best start in life and are ready to succeed.</p>	<ul style="list-style-type: none"> ○ Health and long-standing illness ○ School performance in major subjects ○ Behavioural problems ○ Household income and material deprivation. ○ School performance in major subjects ○ Behavioural problems 	<p>Age and sex of parents and child, parental income, parental employment, parental social class, area deprivation, area urban-rural classification, family characteristics – number of children, marital status, lone parent/couple family</p>	<p>FACS is a panel study of British families with dependent children funded by a number of UK government departments including the Department for Work and Pensions, HM Revenue and Customs, Department for Education and Skills and the Department for Transport.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> ○ School performance in major subjects ○ Behavioural problems 		<p>The study was launched in 1999 and interviews have been undertaken annually with the main respondent (typically the mother) and his or her partner since that time.</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> ○ Behavioural problems ○ Problems with drugs and alcohol ○ Attitudes to parenting ○ In-work support for families through tax credits ○ Household income and material deprivation 		<p>The sample was initially representative of lone parent and low income couple families. This was extended to include higher income families from 2001. Around 8000 families are interviewed nationally at any single wave. Of these, around 700 are Scottish families.</p>
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> ○ Mothers' use of services ○ Use and opinions of local services for children and young people ○ Mothers' satisfaction with local area ○ Housing details 		<p>The sample is replenished every year by including new eligible child benefit recipients in the sampled areas. On average in</p>
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> ○ Mothers' use of services ○ Use and opinions of local services for children and young people ○ Mothers' satisfaction with local area 		

	<p>area</p> <ul style="list-style-type: none"> ○ Travel to school ○ General health and long-standing illness/disability of children and parents ○ Travel to school ○ Children's physical activity ○ Problems with drugs and alcohol. 	<p>FACS, 78 per cent of any yearly cohort is interviewed again in the year following the first interview, 71 per cent of cases are still in the study after two years, 64 per cent after three years, 56 per cent after four years, about half (50 per cent) remain after the sixth wave of interviews and 46% after the seventh wave.</p> <p>From wave 9 (2007) onwards priority sampling was introduced where families with at least one of the following characteristics were retained in the sample: lone parents; families with a disabled adult and/or child; three or more children; low income families (below 70 per cent of median income); and families with a living absent parent. A sampling fraction was applied to the remaining families.</p>
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> ○ Employment of parents, levels of employment within families and constraints on mothers in returning to work ○ Current and historic economic activity, future working prospects ○ Attitudes to work and childcare ○ Education and employment within families 	
<p>We realise our full potential with more and better employment opportunities for our people.</p>		
<p>We are better educated, more skilled and successful, renowned for our research and innovation</p>		

General Household Survey (GHS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We realise our full economic potential with more and better employment opportunities for our people</p> <p>We are better educated, more skilled and more successful, renowned for our research and innovation</p>	<ul style="list-style-type: none"> o Employment/economic activity (in last 12 months) o Employment/economic activity (in last 12 months) o Education and training – current and previous 	<p>Household composition – age of and relationships between all household members, marriage/cohabitation, housing tenure, area,</p> <p>For individuals – ethnicity and country of birth, employment and economic activity, current and previous education, housing tenure, income,</p>	<p>The GHS is an inter-departmental multi-purpose continuous survey carried out by ONS. It has been conducted as a continuous population survey of people living in private households in Great Britain since 1971. It became longitudinal in 2005 to take account of European Community data collection needs. The review of GHS content has therefore been restricted to 2005 onwards.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<p>Info on the 16-24 age group:</p> <ul style="list-style-type: none"> o Employment/economic activity (in last 12 months) o Education and training – current and previous o Leisure/Social and Cultural Participation including involvement in groups and clubs and volunteering 		<p>The GHS sample design follows a four-year sample rotation in which households remain in the sample for four years (waves) with one quarter of the sample being replaced each year. Each quarter of the sample is known as a replication, and each replication is representative of the target population. Once the system is fully established (from year 4/2009 onwards) the sample for any one year</p>
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> o Acute sickness o Longstanding illness o General health o Smoking o Alcohol consumption 		
<p>We have tackled the significant inequalities in Scottish society</p>	<ul style="list-style-type: none"> o Car ownership o Consumer durables o Accommodation problems o Economic activity o Income 		

<p>We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others</p>	<p>o Leisure/Social and Cultural Participation including asking for help from neighbours</p>	<p>consists of four replications which have been in the survey for 1, 2, 3 or 4 years. Each year one of the four replications is dropped and a new one added, giving an overlap of 75 per cent between successive years.</p>
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<p>o Accommodation problems (damp etc)</p>	<p>In 2006, interviews were achieved in 9,731 households across Britain. This included 893 Scottish households and 1627 individual interviews in Scotland. The rotational nature of the sample design means that longitudinal data, over 4 years, will only be available for around one quarter of this sample - approximately 400 cases.</p>
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<p>Use of health services: o Day patient visits o GP consultations o NHS Direct/24 o Hospital stays o Outpatient attendances</p>	

Go Well Glasgow (GWG)

Relevant National Outcomes	Related variables or topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
We live longer, healthier lives	<ul style="list-style-type: none"> ○ Recent symptoms, long term conditions, general health and wellbeing scale ○ Symptoms and conditions among children ○ Health behaviours (drinking, smoking, diet, exercise, drugs use) 	Outcomes can be explored in relation to: Households (composition, relationships, occupational status, ethnicity, religion, citizenship) Housing (tenure, quality) Neighbourhoods and communities (quality of local environment and services, perceptions of the area, sense of community, neighbourhood problems and recent change) Social networks (social contacts, social support, civic involvement) Education, employment and income (current/last job, income, qualifications, affordability of household bills, sources of credit)	The Go Well Glasgow study is a longitudinal study of the processes and impacts of housing improvement and neighbourhood transformation undertaken within the city of Glasgow over 10 years between 2006 and 2016. It is jointly funded by the Glasgow Housing Association, Glasgow Centre for Population Health, Communities Scotland, NHS Health Scotland, NHS Greater Glasgow and the University of Glasgow.
We have tackled the significant inequalities in Scottish society	<ul style="list-style-type: none"> ○ Health and wellbeing (see above) ○ Occupational status ○ Housing tenure/quality ○ Education, employment and income ○ Neighbourhood (quality of local environment/services) 		
We have improved the life chances for children, young people and families at risk	<ul style="list-style-type: none"> ○ Health and wellbeing (see above) ○ Education, employment and income ○ Housing quality ○ Neighbourhood 		The study comprises several research elements: <ul style="list-style-type: none"> ○ An ecological study of city wide changes using mostly administrative data ○ A 'Community Health and Wellbeing' study involving a 4 repeat cross-sectional surveys (in 2006, 2008, 2010 and 2012) of around 6000 randomly selected individuals in 14 key areas of Glasgow (around 400-700 in each area at each wave). Whilst essentially cross-sectional, many respondents at Wave 2
We live in well-designed, sustainable places where we are able to access the amenities and services we need	<ul style="list-style-type: none"> ○ Quality of environment ○ Assessment of and access to local services, and amenities ○ Housing quality ○ Perceptions of area ○ Social networks 		
Our public services are high quality, continually improving, efficient and responsive to local	<ul style="list-style-type: none"> ○ Quality of environment ○ Assessment of and access to local services, and amenities 		

<p>people's needs</p>				<p>also participated at Wave 1, as such individual-level longitudinal data will also be available for these individuals.</p> <ul style="list-style-type: none"> ○ A panel study of around 1000 respondents from the first wave of the Community survey who move voluntarily or are relocated out of the selected neighbourhoods by wave 2. This study, which is focussed on 6 areas, launches in November 2008. ○ A 'Community Health and Wellbeing' study involving a 4 repeat surveys of around 6000 randomly selected individuals in 14 key areas of Glasgow (around 400-700 in each area at each wave) ○ A panel study of those who move voluntarily or are relocated out of the selected neighbourhoods ○ A qualitative study with residents, policy-makers and practitioners exploring governance, participation and neighbourhood change. ○ Nested cohort studies aimed at specific initiatives and/or specific sub-groups. <p>Ultimately there will be longitudinal data at the level of</p>
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>		<ul style="list-style-type: none"> ○ Housing quality ○ Occupational status ○ Housing tenure 		

				each area, as well as on individuals.
--	--	--	--	---------------------------------------

Growing Up in Scotland (GUS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness
<p>Our children have the best start in life and are ready to succeed.</p>	<ul style="list-style-type: none"> o Maternal health during pregnancy o Birth weight o Breastfeeding o General health, long-standing and acute illness o Child development indicators o Cognitive assessment o Height and weight measurements o Family circumstances including family income, accommodation, parental relationships, parental employment o Access to facilities including local health services, libraries, swimming pools and parks/playgrounds 	<p>Age and sex of parents and child, parental income, parental employment, parental social class, area deprivation, area urban-rural classification, family characteristics – number of children, marital status, lone parent/couple,</p>	<p>Growing Up in Scotland is a longitudinal study of children and families living in Scotland funded entirely by the Scottish Government. It includes two cohorts; a birth cohort of 5217 children born between June 2004 and May 2005, and a child cohort of 2859 children born between June 2002 and May 2003.</p> <p>Interviews in both cohorts have been undertaken annually with the child's main carer (usually the child's mother) since 2005. Sweep 2 launched in April 2006, sweep 3 in April 2007 and sweep 4 in April 2008.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p> <p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Cognitive assessments o Child development indicators o School readiness scale o Maternal health during pregnancy o Birth weight o Breastfeeding o General health, long-standing and acute illness o Child development indicators o Cognitive assessments 		<p>At sweep 2 a shorter partner's interview was also conducted. In addition, height and weight measurements were taken of the child cohort at sweep 2 and of both cohorts at sweep 4. Cognitive assessments were carried out with children in the birth cohort at sweep 3.</p> <p>Wave-on-wave response is around 90%.</p>

	<ul style="list-style-type: none"> ○ Height and weight measurements ○ Family circumstances (see above) ○ Parental employment ○ Service access and use including parenting classes and other support services ○ Pre-school uptake ○ Parental mental health (DASS) 	<p>Two cohorts of different ages – allows cross-sectional time-specific analysis, cross-sectional time-series analysis and longitudinal analysis. Most data collected can be compared between the two cohorts at each sweep.</p>
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> ○ Accommodation including tenure and heating ○ Facilities in the local area including availability and satisfaction ○ Attitudes towards the local area, involvement in local activities ○ Access to and satisfaction with childcare including pre-school and after-school clubs ○ Antenatal provision, parenting classes. 	<p>A new contract for sweeps 5-8 is due to be awarded in July 2008. It is likely that the birth cohort will continue to be interviewed annually until the age of 5, whilst the child cohort are now expected to be interviewed at key transition stages. A new birth cohort is proposed for 2011.</p>
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> ○ Availability of and satisfaction with health services including antenatal provision, A&E ○ Use of services such as dentist, GP, practice nurses, NHS24 etc. ○ Availability of and satisfaction with state-funded childcare places, including preschool, afterschool and breakfast clubs. ○ Experiences of primary school, 	

	<p>including availability of places, satisfaction with school, homework received and completed, information received from schools, provision for children with additional support needs.</p> <ul style="list-style-type: none"> ○ Availability of and satisfaction with other public services in the local area 		
<p>We live longer, healthier lives.</p>	<ul style="list-style-type: none"> ○ Parent and child general health, mental health, longstanding illness ○ Physical activity ○ Travel to and from school ○ Food and eating ○ Height and weight measurements 		
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<ul style="list-style-type: none"> ○ Accommodation including tenure and heating 		

Healthy Old People in Edinburgh Study (HOPE)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> ○ Psychometric testing, including memory and fluid intelligence tests, ○ Physiological measurements, including weight, blood pressure, grip strength and respiratory function, ○ Questionnaires enquiring about disability and self-esteem 	<p>Age, gender, occupational group, area deprivation</p>	<p>For this study, funded by the Scottish Executive Department of Health, 603 healthy, unmedicated people aged 70 years and over and living in Edinburgh were recruited in 1990-1.</p> <p>Participants were followed up in 1994-5 (n=429), 1997-8 (n=301) and 1999-2000 (n=201), to determine key predictors of, and associations with successful ageing. Cohort members completed questionnaires at each wave and underwent various health assessments</p> <p>There are no plans for further follow-ups. A considerable amount of analysis has already been undertaken using this data including articles which focus on blood pressure and age-associated cognitive decline.</p>

Inter-Departmental Business Register (IDBR)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness
<p>We live in a Scotland that is the most attractive place for doing business in Europe</p>	<ul style="list-style-type: none"> o Main business activity o Size of businesses o Economic growth o Business turnover o Standard Industrial Classification 	<p>At unit level (which can be either administrative unit, statistical unit, or observation unit): Standard Industrial Classification (SIC2003 and SIC2007), Employment and employees, Turnover, Legal status (company, sole proprietor, partnership, public corporation/nationalised body, local authority or non-profit body), Country of ownership, location</p>	<p>The Inter-Departmental Business Register (IDBR) is a list of UK businesses maintained by the Office for National Statistics (ONS) and combines the former Central Statistical Office (CSO) VAT based business register and the former Employment Department (ED) employment statistics system. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analysis of business activity.</p>
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<p>The sample size is large enough to consider issues related to area urban/rural characteristics in detail.</p>		<p>The IDBR covers businesses in all parts of the economy, and in all of Scotland, missing some very small businesses operating without VAT or PAYE schemes (self employed and those with low turnover and without employees) and some non-profit organisations.</p> <p>The data from IDBR is already used to provide an overview of Scottish economic development and prospects examined in the context of UK, EU and global economies.</p>

			<p>The IDBR is longitudinal in the sense that it allows businesses to be tracked overtime with key data updated on an annual basis</p> <p>Currently, IDBR is used almost exclusively by Government departments and organisations. Other individuals and organisations can request bespoke analysis.</p>
--	--	--	---

Labour Force Survey (LFS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We realise our full economic potential with more and better employment opportunities for our people</p>	<ul style="list-style-type: none"> ○ Details of current economic activity including employment status, current and previous jobs, duration of current and previous jobs, duration of unemployment, sector, full-time/part-time industry and occupation ○ Labour mobility ○ Barriers to work – method of obtaining job, method of seeking work, method of travel to work, health problems affecting ability to work, reasons for not seeking work 	<p>The following information is collected for everyone in the household: gender; age last birthday; date of birth; marital status; living arrangements;</p> <p>The additional information is collected for respondents: ethnic origin, national identity, industry, occupation, socio-economic classification, period of residence at current address, housing tenure.</p>	<p>This is an ongoing, continuous survey of UK adults aged 16 and older. The survey is designed to produce a set of national and regional employment and unemployment statistics for use by government departments and for comparison with other European Union countries.</p> <p>The LFS has a panel design, where each sampled address is interviewed for five waves. Interviews take place at three month intervals with the fifth interview taking place a year after the first. The first interview is conducted using a face to face CAPI interview, subsequent interviews are conducted by telephone.</p>
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<p>The sample size is large enough to consider issues related to area urban/rural characteristics in detail.</p>		<p>Interviews are achieved at around 59,000 addresses with 138,000 individual respondents each quarter. In Spring 2003 a boost to the Scottish sample was added taking the number of Scottish households included to 12,000 per year. The Scottish sample extends beyond the Caledonian</p>

			<p>Canal (although its coverage is partial in this area). The sample size in each LA in Scotland is boosted to produce an expected minimum of 875 economically active adults.</p> <p>Since 2004 LFS data sets have been merged into the Annual Population Survey and from January 2008 these will be incorporated in the Integrated Household Survey.</p>
--	--	--	---

Life Opportunities Survey (LOS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We have tackled the significant inequalities in Scottish society</p> <p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<p><i>Note: This survey is still in the early stages of development and no questionnaire content has been confirmed. Broadly, however, the survey will explore the barriers disabled people experience from a social model perspective. It will track the experiences of disabled people over time to assess transitions through key stages, such as moving from childhood to adulthood or in and out of work, and people's experiences of receiving a range of benefits and services." As the study will also include non-disabled respondents inequalities can be identified and monitored.'</i></p>	<p>Expected variables will include: age and sex of all respondents, socio-economic characteristics, employment and education details of adult respondents. Presumably, parental socio-economic characteristics will be collected for child respondents.</p>	<p>The survey, funded by DWP, will involve interviews with three main groups of a) disabled people, b) comparison group of non-disabled people and c) an 'onset screening sample' of people who experienced the onset of impairment. The survey will start with a baseline random sample of 50,000 people, providing cross-sectional data on a range of outcomes.</p>
<p>We realise our full economic potential with more and better employment opportunities for our people</p>			<p>Scoping work to sample specific groups such as people in communal establishments, disabled children and impairment groups often excluded in existing household surveys is currently underway and linkage with government administrative health, social care and benefits data is also being considered.</p>
<p>We take pride in a strong, fair and inclusive national identity.</p>			<p>Technical development and pilot testing of the survey will be carried out in 2008/9, with</p>

the baseline survey expected to go live in 2009/10. Interim findings are expected by end 2010, with final results by 2011. The precise model of cohorts and follow-up frequency have not yet been finalised.

ONS are developing the baseline survey as a module of the The Integrated Household Survey (IHS).

An equal probability sample across GB would lead to achieved sample sizes in England, Scotland and Wales that are in proportion to the population in each country. This would return a total Scottish sample size of around 4356, including 726 disabled people. Options for boosting the sample are currently being explored with Scottish Government

Longitudinal Study of Refugees (LSR)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We realise our full economic potential with more and better employment opportunities for our people</p>	<ul style="list-style-type: none"> o Employment and economic activity 	<p>Age, gender, country of origin, family characteristics, employment, income, educational attainment, proficiency in the English language, UK-country where currently living, area/neighbourhood characteristics</p>	<p>This is a UK-wide study of refugees and asylum-seekers who have been given leave to remain in the UK.</p>
<p>We take pride in a strong, fair and inclusive national identity.</p>	<ul style="list-style-type: none"> o Attitudes towards local people and other refugees 		<p>The proposed sample size is around 9000 with 2-3% of this sample being in Scotland (approx 200 adults). All refugees arriving under the resettlement programme will be asked to participate.</p>
<p>We have tackled the significant inequalities in Scottish society</p>	<ul style="list-style-type: none"> o Income o Housing characteristics and conditions 		
<p>We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others</p>	<ul style="list-style-type: none"> o Relations with other migrants and non-migrants in local community 		<p>The study will provide valuable new information in two areas – the provision of data to monitor outcomes and/or indicators of integration, and data to describe the process of integration.</p>
<p>We take pride in a strong, fair and inclusive national identity</p>	<ul style="list-style-type: none"> o Attitudes towards the UK population and other minority groups 		
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o The impact of service provision on integration and support offered to aid successful integration o Interaction with health services, education services and legal services 		

Millennium Cohort Study (MCS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>Our children have the best start in life and are ready to succeed.</p>	<ul style="list-style-type: none"> o Birth weight o Breastfeeding o General health, long-standing and acute illness o Child development indicators o Cognitive assessments o Height and weight measurements o Family circumstances including family income, accommodation, parental relationships, parental employment o Parenting and activities with child o Schooling including parental satisfaction and child's enjoyment o Children's diets 	<p>Age and sex of parents and child, parental income, parental employment, parental social class, area deprivation, area urban-rural classification, family characteristics – number of children, marital status, lone parent/couple, car ownership</p>	<p>The Millennium Cohort Study (MCS) is a continuing, multi-disciplinary longitudinal study launched in 2000 and funded by the ESRC and a consortium of Government departments. The sample population for the study was drawn from all live births in the UK over 12 months from 1 September 2000 in England & Wales and 1 December 2000 in Scotland & Northern Ireland.</p> <p>Interviews have been undertaken every two years with the child's main carer (usually the child's mother) since 2005. Wave 2 launched in September 2003, Wave 3 in September 2005 and Wave 4 in September 2007.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> o Cognitive assessments o Child development indicators <p>For older sibling:</p> <ul style="list-style-type: none"> o Alcohol, smoking and drug use o Contact with police 		<p>At each wave, a shorter partner's interview has also been conducted. In addition, height and weight measurements of and cognitive assessments with the children have been conducted from Wave 2 onwards. Sibling</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Parental employment and educational qualifications, o Homelessness and accommodation conditions o Support for children with additional support needs, 		

<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> o Income. o Use of health services: antenatal care and class attendance, child's birth, neonatal care, hospital and A&E use, ease of access to local primary health services. 	<p>questionnaires and neighbourhood have also been employed.</p>
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Use of health services: hospital and A&E use, ease of access to local primary health services. o Public transport o Play areas o Childcare o Primary schools. 	<p>The sample was selected from a random sample of electoral wards, disproportionately stratified to ensure adequate representation of all four UK countries, deprived areas and areas with high concentrations of Black and Asian families.</p>
<p>We live longer, healthier lives.</p>	<p>Measures of parent and child physical and mental health including:</p> <ul style="list-style-type: none"> o Acute and longstanding illness o Fertility treatment o Hospital and A&E use, parent o Child height and weight measurements o Parental smoking including child passive smoking o Parental alcohol consumption o Parental drug use o Children's physical activity o Immunisations o Children's diets. 	<p>The initial overall sample size was around 18,000 babies. The Scottish sample size was 2336 at Wave 1, 1814 at Wave 2. Some sample refreshment, where new families are introduced to the cohort, is undertaken at each wave.</p> <p>Whilst response at each wave is generally high, recent analysis of the Scottish data suggests that the Scottish sample has suffered from a different pattern of attrition to elsewhere which has implications for the validity of certain types of analysis.</p>

<p>We have strong, resilient supportive communities where people take responsibility for their own actions and how they affect others.</p>	<ul style="list-style-type: none"> ○ Friendliness of, and satisfaction with, neighbours and the local area. 		
<p>We take pride in a strong, fair and inclusive national identity.</p>	<ul style="list-style-type: none"> ○ Attitudes towards people of different ethnicities, single parents, different religions, experience of racism. 		
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<ul style="list-style-type: none"> ○ Housing details including tenure and quality 		

National Child Development Study (NCDS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>Our children have the best start in life and are ready to succeed.</p>	<ul style="list-style-type: none"> ○ Birth details ○ Aspirations and expectations for child's future ○ Parental education and occupation ○ Child's behaviour in school (Bristol Social Adjustment Guide) ○ Disciplinary methods used, Size and nature of child's class ○ Ability ratings ○ Likely examination entries ○ Details of any special provisions for the child, ○ School attendance record, ○ Prediction of future educational and occupational progress ○ Exam results ○ Adult numeracy and literacy problems 	<p>Parental employment, ages of cohort member and parents, marital status of parents, parental education, parental income, poverty indices, educational qualifications, employment status, income.</p>	<p>The National Child Development Study (NCDS) is a continuing, multi-disciplinary longitudinal study which takes as its subjects all the people born in one week in England, Scotland and Wales in one week in March 1958.</p> <p>The study was originally designed to examine the social and obstetric factors associated with stillbirth and death in early infancy among the children born in Great Britain in that one week. Since then there have been seven attempts to re-contact the cohort – most recently in 2008.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> ○ Children's behaviour in school (Bristol Social Adjustment Guide) ○ Disciplinary methods used ○ Size and nature of child's class ○ Ability ratings ○ Likely examination entries ○ Details of any special 		<p>Core data collection initially involved interviews with the child's parents. From Wave 2 (age 7) to Wave 4 (age 16) these were combined with child medical examinations, school tests, and child questionnaires. The cohort member became the main source of data from Wave 5 (age 23) onwards with their</p>

	<p>provisions for the child</p> <ul style="list-style-type: none"> o Attendance record o Prediction of future educational and occupational progress o Tests of attainment o Exam results o Educational qualifications o Adult literacy and numeracy problems 	<p>own partners and children incorporated from Wave 6 (age 33).</p> <p>The initial overall sample size was around 17,500 babies. At each follow-up the Scottish sample size is around 1000. There are no particular issues related to differential attrition.</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Experience of lone parenthood o Support for families o Household income o Housing and accommodation conditions o Employment and educational qualifications. 	<p>The future of the study is now more certain following the long-term funding of CLS, who run the study, as an ESRC Resource Centre. The forward plan for BCS proposes follow-ups every 4 years alternating face-to-face and telephone/postal surveys. The 2008 survey is being conducted by telephone/post.</p>
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> o Housing and accommodation conditions 	
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Use of health services including, and in particular, ante-natal care for mother o School information: type and size, social composition, academic performance, provision for sex education and careers advice o Homelessness, 	
<p>We realise our economic potential with more and better employment opportunities for our people.</p>	<ul style="list-style-type: none"> o Employment and periods of unemployment o Earnings from employment o Apprenticeships and training 	

	<ul style="list-style-type: none"> ○ Promotion ○ Job satisfaction and choice ○ Job behaviour ○ Children's ability ratings ○ Tests of attainment ○ Attendance record ○ Exam results ○ Educational qualifications ○ Apprenticeship and training ○ Adult literacy and numeracy problems 	
<p>We are better educated, more skilled and successful, reknowned for our research and innovation.</p>	<ul style="list-style-type: none"> ○ Obstetric history of mother ○ Abnormalities during pregnancy, abnormalities during birth ○ Progress and weight of infant ○ Mother's smoking during pregnancy ○ Child's general health, accidents, hospital admissions and GP visits ○ Details of medical history relating to vision, hearing, speech therapy, convulsions, asthma, enuresis, psychiatric problems, dental care and pubertal development (note- these were self-reported and a full medical examination was carried out) ○ Disease and ill-health ○ Miscarriage and abortion amongst cohort members ○ Smoking and drinking, illegal drug use 	
<p>We live longer, healthier lives.</p>		

	<ul style="list-style-type: none"> ○ Depression (Malaise Inventory) ○ Fertility of cohort member. 	
<p>We have tackled the significant inequalities in our society.</p>	<ul style="list-style-type: none"> ○ Disease and ill-health ○ Homeownership ○ Educational qualifications ○ Car ownership ○ Access to computers ○ Household income. 	
<p>We live our lives safe from crime, disorder and danger.</p>	<ul style="list-style-type: none"> ○ Contact with the police and experience of crime (2004 only) 	
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<ul style="list-style-type: none"> ○ Housing and accommodation conditions 	

National Study of Health and Growth (NHSG)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness
<p>Our children have the best start in life and are ready to succeed</p>	<ul style="list-style-type: none"> o Various child health data including anthropometric measurements, birth weight and gestation, general health and illnesses, lung function o Breastfeeding o Parental smoking o Family socio-economic circumstances including parental employment and social class, number of rooms in household, household composition, receipt of benefits o Availability of school milk 	<p>Child sex and age, parental age, household/family composition, number of rooms in house, parental education and employment, parental social class, receipt of benefits</p>	<p>This study ran in England and Scotland from 1972 to 1994. The original aim was to develop a system of surveillance which could detect changes in growth, nutrition and health of primary school children resulting from any future changes in social or environmental conditions.</p>
<p>We have tackled the significant inequalities in Scottish society</p>	<ul style="list-style-type: none"> o Parental smoking o Family socio-economic circumstances including parental social class, number of rooms in household, household composition, receipt of benefits o Parental education levels 		<p>Each year the data collected consisted of a series of anthropometric measurements, a short social questionnaire to the mother or female guardian. Variations and additions to the measurements and questionnaire content were made at several points over the duration of the study.</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Various child health data including anthropometric measurements, general health and illnesses, lung function o Parental education levels 		<p>The sample covered all primary aged school children attending 40 selected state schools situated in 28 employment exchange areas in England and Scotland, except in two areas where only children with even date birthdays were included. In schools with additional nursery or</p>

<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> o Various child health data including anthropometric measurements, general health and illnesses, lung function o Child food and nutrition – food frequency, sensitivity and intolerance of foods, supplement intakes o Parental health data including height and weight, smoking, parental atopy 	<p>other classes only the children attending the designated primary classes (i.e. children generally aged between 4 ³/₄ to 11) were included.</p> <p>The total sample in any one year was around 10,000 children. In the original design, 6 of the sampled areas were in Scotland equating to around 2000 children in total. At phase 3 of the study (from 1982) a Scottish boost was added every odd year taking the number of Scottish areas to 14, and the number of children to around 5000.</p> <p>Up to seven years of data is available for some children. In Scotland, in the original sample, a single 'school year' cohort has around 300 children. In the boosted years this figure is around 700.</p> <p>As a school-based study, sweep-on-sweep response was generally high with response averaging at around 85% in each wave.</p>
--	--	--

Scottish Continuous Recording System (SCORE)

Relevant National Outcomes	Related variables or topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<ul style="list-style-type: none"> o Tenancy status, tenancy start date, landlord/letting details, o Household details: o Reason for leaving last home (including problems with dwelling, landlord issues, relationship or personal issues, financial issues) o Previous homelessness status o Previous living circumstances of tenant o Previous location of tenant (local authority), o Accommodation details: o Type of property o Apartment size, no. of bedrooms o Scottish Social Housing Standard (condition of property) o Design type (sheltered etc) o Type of letting o Rent and other housing costs 	<p>Household characteristics – for each person in the household: Age, sex, economic status, average hours worked (if employed),</p> <p>For household/tenant: Ethnicity of tenant, whether household has people of different ethnicity, weekly household income, receipt of benefits, household savings and capital</p>	<p>SCORE is a government funded administrative database which monitors new tenancies granted by registered housing associations and co-operatives in Scotland. Data collection, preparation and analysis are undertaken by the Centre for Housing Research at the University of St Andrews.</p> <p>The database is continually updated through the use of the SCORE lettings log which is completed by RSL staff for each new letting made. It monitors the circumstances of households, not individuals.</p>

Scottish Health, Housing and Regeneration Project (SHARP)

Relevant National Outcomes	Related variables or topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> o Satisfaction with neighbourhood o Assessment of neighbourhood problems – environmental (e.g. quality of pavements), services (e.g. facilities for children) and anti-social (drug dealing, nuisance behaviour) 	<p>Age and sex of respondents, household composition, measures of 'affordability' – i.e. extent to which household can afford to pay bills etc., area-level measures including urban/rural and deprivation</p>	<p>SHARP is a longitudinal study, funded by Communities Scotland, of the health and wellbeing impacts of moving into new, general purpose, social housing provided by Registered Social Landlords across Scotland. Its main aim is to examine to what extent rehousing into a new socially rented dwelling delivers changes in terms of housing conditions, neighbourhood conditions, housing management performance and sense of community; as well as changes in the health and wellbeing of tenants.</p>
<p>We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others</p>	<ul style="list-style-type: none"> o Assessment of neighbourhood problems – environmental (e.g. quality of pavements), services (e.g. facilities for children) and anti-social (drug dealing, nuisance behaviour) o Friendliness 		
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> o General health o Common symptoms o Mental health and well-being (SF-36) including measures of 'vitality' 		
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<ul style="list-style-type: none"> o Housing conditions/problems with the home – e.g. existence of damp, size of rooms etc 		
<p>We live our lives safe from crime, disorder and danger</p>	<ul style="list-style-type: none"> o Level of anti-social behaviour/nuisance in neighbourhood 		<p>The study consists of three household surveys, and 28 in-depth interviews with a small sample of people who have moved into a new home. The surveys took place just before rehousing (the baseline survey), then one year after rehousing (intervention group only), and finally two years after rehousing.</p>

			<p>The study is designed to compare the experiences of two groups: a group of households who are rehoused into new social housing (the Intervention Group) and a group who reside in the same locality as the newly developed housing but are not themselves rehoused (the Comparison Group).</p> <p>Samples of 334 Intervention households and 389 Comparison households were recruited to the study at baseline. The new social houses are provided at around 60 sites across Scotland, by 45 different landlords, spanning 21 local authority areas.</p>
--	--	--	---

Scottish Longitudinal Study (SLS)

Relevant National Outcomes	Suggested variables	explanatory	Demographic Controls	Comments on: Analysis, Representativeness Sample,
We realise our full economic potential with more and better employment opportunities for our people.	<ul style="list-style-type: none"> o Census: economic activity and occupation (1991 and 2001). 		Age, sex, marital status, cohabitation and family make-up, accommodation, country of birth, ethnicity, educational qualifications, social class, area deprivation (CARSTAIRS) and urban-rural classification.	The Scottish Longitudinal Study is a large-scale linkage study which has been created by using data available from current Scottish administrative and statistical sources. These include Census data, Vital Events data (births, deaths, marriages), National Health Service Central Register data (migration in or out of Scotland) and NHS data (cancer registrations and hospital discharges).
We are better educated, more skilled and more successful, renowned for our research and innovation.	<ul style="list-style-type: none"> o Census: educational qualifications, economic activity and occupation (1991 and 2001). 			
Our young people are successful learners, confident individuals, effective contributors and responsible citizens	<ul style="list-style-type: none"> o Census: educational qualifications, economic activity and occupation (1991 and 2001). 			
We live longer, healthier lives.	<ul style="list-style-type: none"> o Census: limiting long-term illness (1991 and 2001), self-rated health (2001). o Vital events: stillbirths, infant mortality, deaths o Health events: cancer registrations, hospital admissions and discharges. 			The SLS contains data from the 1991 census onwards. Data on health events is not held on the database but is linked as required for approved research studies.
We have tackled the significant inequalities in Scottish societies.	<ul style="list-style-type: none"> o Census: accommodation, educational qualifications, occupation and social class, long-standing illness, self-rated health. o Vital events: deaths, stillbirths, infant mortality. o Health events: hospital admissions and discharges. 			The SLS is a 5.3% representative national sample equating to a sample of around 274,000 individuals.
We have improved the life chances for children, young people and	<ul style="list-style-type: none"> o Census: accommodation, educational qualifications, 			

<p>families at risk</p>	<p>occupation and social class, long-standing illness, self-rated health.</p> <ul style="list-style-type: none"> o Vital events: deaths, still-births, infant mortality. 		
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<p>The sample size is large enough to consider issues related to area urban/rural characteristics in detail.</p>		

Scottish School Leavers Study (SSLS)

Relevant National Outcomes	Related variables	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We are better educated, more skilled and more successful, renowned for our research an innovation</p>	<ul style="list-style-type: none"> o Age left school o Participation in ft education or training after leaving school o Highest educational qualification obtained (gathered at age each sweep) 	<p>Age, sex, region* (that they attended secondary school), parental social class, occupation of parents, housing tenure, family or childcare commitments, living arrangements, various other indicators of disadvantage</p>	<p>The Scottish Executive has sponsored surveys of school-leavers and young people since the early 1970s. These include the first incarnation of the Scottish School-Leavers Survey (SSLS) which, in the mid-1980s, was subsumed within the broader Scottish Young People's Survey. A further review in 1996 led to the establishment of the final design, which involved sampling cohorts of young people in fourth year and then collecting data from them on four occasions, at the ages of 16-17, 18-19, 21-22 and 23-24 years.</p>
<p>We realise our full economic potential with more and better employment opportunities for our people</p>	<ul style="list-style-type: none"> o Employment after leaving school o Occupation and industry classification o Ft or pt work o Average number of hours worked per week o Level of training received through work o Level of pay o Attitudes to job o Student debt, benefits and average weekly income 	<p>*note some problems with the regional variable</p>	<p>Data was collected via a postal self-report questionnaire completed by the cohort member.</p>
<p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<ul style="list-style-type: none"> o Qualifications obtained at x years o Age left school o % who go on to higher/further education after school o How much control young people feel they have over their lives (agree/disagree statements) 		<p>Cohort 3 holds the most complete data – this involved collecting data on four occasions, at the ages of 16-17 (in 1999), 18-19 (in 2001), 21-22 (in 2004) and 23-24 (in 2006).</p> <p>Achieved sample size varies by cohort but for Cohort 3:</p>

	<ul style="list-style-type: none"> ○ Aspirations – where they expect to be in 1 and 4 years time 	<p>Sweep 1 = 7567 (response rate = 65%) Sweep 4 = 1627 (22% of achieved Sweep 1 sample).</p>
<p>We have tackled the significant inequalities in Scottish society</p>	<ul style="list-style-type: none"> ○ Age left school ○ Qualifications obtained ○ Employment at age x ○ Weekly income ○ Industry working in ○ Low skill jobs ○ Hours worked ○ Having a computer and access to internet ○ Young people NEET 	<p>The survey suffered considerable attrition particularly amongst key-groups of interest. This presents some limitations to the types of longitudinal analysis which can be undertaken with the data.</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> ○ % of young people with family or childcare commitments ○ % of young people staying on at school, taking more exams, ○ Young people NEET ○ % truanting 	<p>The survey is currently suspended and is subject to a review.</p>
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> ○ Qualifications obtained ○ % who go on to study at university ○ Method of finding job ○ Careers guidance (whether received, whether helpful) ○ Attitudes to school 	

Scottish Survey of Achievement (SSA - formerly Assessment of Achievement Programme)

Relevant National Outcomes	Related variables or topics	Explanatory variables	Comments on: Analysis, Representativeness Sample, Assessment of Programme
Our children have the best start in life and are ready to succeed.	<ul style="list-style-type: none"> ○ Performance in key subject areas ○ Classroom experience ○ Teacher rated behaviour and motivation to learn ○ Parents involvement in learning ○ Job aspirations. 	Age and sex of child, SIMD, LA (in some cases).	The Achievement Programme (AAP) monitored the attainment of pupils from the 1980s to 2004. Until 2002 it monitored performance in English language, mathematics and science in P4, P7, and S2. From 2002 the survey monitored social subjects (enquiry skills) (2002), science (2003) and mathematics (2004). The core skills of literacy, numeracy, ICT, problem solving and working with others were also assessed in the surveys since 2002.
Our young people are successful learners, confident individuals, effective contributors and responsible citizens	<ul style="list-style-type: none"> ○ Performance in key subject areas ○ Classroom experience ○ Teacher rated behaviour and motivation to learn ○ Homework ○ Job aspirations. 		
We live longer, healthier lives	<ul style="list-style-type: none"> ○ Sport and other activities outside the classroom. 		
We are better educated, more skilled and successful, renowned for our research and innovation	<ul style="list-style-type: none"> ○ Performance in key subject areas and core skills, classroom experience, teacher rated behaviour and motivation to learn. 		<p>These surveys monitored performance in P3, P5, P7 and S2. In May 2005 the AAP was replaced by the Scottish Survey of Achievement which again gathers evidence from P3, P5, P7 and S2, using a range of assessments, including written assessments and practical activities.</p> <p>Each year the survey focuses</p>

		<p>on one curricular area - English language, mathematics, science or social subjects (enquiry skills). SSA also gathers evidence of pupils' performance in core skills such as numeracy, communications, using ICT, problem solving and working with others.</p> <p>The sample size is around 36,000 (9,000 in each year group). Schools are randomly sampled and then pupils are randomly sampled within schools.</p> <p>The survey is not longitudinal at the level of the pupil, but is at the level of the primary year group. For example, the P3 year group in 2005 become the P5 year group in 2007, the P7 year group in 2009 and the S2 year group in 2011.</p> <p>The data is able to be analysed nationally and, where LAs have opted in, by LA. However the focus and remit of the SSA is being revised in order to reflect the aims and requirements of the Curriculum for Excellence. The precise</p>
--	--	--

				form that the SSA will take is therefore still developing.
--	--	--	--	--

UK Household Longitudinal Study (UKLHS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We realise our full economic potential with more and better employment opportunities for our people</p>	<ul style="list-style-type: none"> ○ Wealth, income and material well-being ○ Labour market activity and employment status, job search ○ Current job characteristics, basic employment conditions, hours of paid work, second jobs ○ Work aspirations, preferences and expectations ○ Linkage to administrative data on benefits, earnings, taxes, government schemes 	<p>The complexity of the data collection will generate a large number of explanatory variables for all respondents as well as variables at household level. The following list details the most prominent of these: age, gender, place of birth, ethnicity, educational qualifications, employment, marital status, income, financial/material well-being, socio-economic classification, number of people in the household, number of children, household/family composition, .</p>	<p>UKHLS is a prospective longitudinal study of the UK population expected to be the largest of its kind in Europe. Key features include:</p> <ul style="list-style-type: none"> • a total target sample size of 40,000 households/100,000 individuals (from age 10 upwards) • an ethnic minority booster sample of 5 groups and over 3,000 households • incorporation of the British Household Panel Survey (BHPS) • interviews from all household members, aged 10 and above • links to supplementary data, such as neighbourhood information • the collection of health indicators and biomarkers • a platform for the collection of qualitative data • an <i>Innovation Panel</i> for methodological research.
<p>We are better educated, more skilled and more successful, renowned for our research and innovation</p>	<ul style="list-style-type: none"> ○ Education and human capital ○ Education aspirations and intentions ○ Linkage to administrative data on education and educational attainment 		
<p>We have tackled the significant inequalities in Scottish society</p>	<ul style="list-style-type: none"> ○ Wealth, income, material deprivation and financial well-being ○ Household facilities and car ownership ○ Savings, pensions and credit ○ Perceptions of quality of life ○ Education, human capital and work ○ Access to transport 		<p>Data collection will involve:</p> <ul style="list-style-type: none"> ○ 12-months between interviews

<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p> <p>We reduce the local and global environmental impact of our consumption and production</p>	<ul style="list-style-type: none"> o Access to ICT o Environmental characteristics of local neighbourhood – such as air quality o Attitudes to environmental issues (energy, transport, air quality, global warming) o Environmental behaviour (e.g. recycling) 	<ul style="list-style-type: none"> o Face-to-face at wave 1, mixed mode at wave 2 o Self-completion for 10-15 year olds o Individual interview at wave 1 restricted to 30 minutes plus self-complete <p>UKHLS will include a considerable boosted Scottish sample of around 7500 adults (16+) plus however many children are in the households of those persons. This includes the existing Scottish BHPS sample.</p>
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> o Health outcomes (SF-12) and health-related behaviour o Lifestyle-related behaviour (smoking, physical activity and diet, medications) o Biomarkers o Obesity o Chronic health conditions o Mental health o Dimensions of life satisfaction/happiness o Linkage to administrative data on health – hospital episodes, births, deaths, cancer 	<p>Fairly innovative approach to questionnaire content with various sub-samples being asked particular sets of questions – some of these will be large mixed sub-samples asked questions on a broad topic, other modules will be triggered on the basis of age, personal circumstances or an ‘event’ (i.e. losing a job, moving house, an election, a flood) allowing the collection of a wide-ranging and complex set of data</p>
<p>We take pride in a strong, fair and inclusive national identity</p> <p>We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others</p>	<ul style="list-style-type: none"> o Ethnic, religious and possibly national identity o Social support, social engagement, social relationships and networks o Linkage to area-level data – social and economic characteristics 	
<p>We live our lives safe from crime,</p>	<ul style="list-style-type: none"> o Illicit and risky behaviour 	

<p>disorder and danger</p> <p>Our young people are successful learners, confident individuals, effective contributors and responsible citizens</p>	<p>(crime, drug use and anti-social behaviour)</p> <ul style="list-style-type: none"> o Lifestyle, social, political, and other participation, dimensions of life satisfaction/happiness o Psychological attributes, cognitive abilities and behaviour 		
<p>We live in well-designed, sustainable places where we are able to access the amenities and services we need</p>	<ul style="list-style-type: none"> o Characteristics of the local neighbourhood including quality of facilities, and environmental difference e.g. prices of goods o Childcare 		
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Health service usage o Childcare o Access to transport 		

Wealth and Assets Survey (WAS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We have tackled the significant inequalities in Scottish society</p>	<p>Related variables and topics</p> <ul style="list-style-type: none"> ○ Tenure and ownership of assets including the family home, vehicles, household goods and valuables ○ Bank accounts (current, savings, deposit, ISA), investments, and real estate ○ Amount of unsecured debt (e.g. credit cards, loans, store cards, mail order) ○ Attitudes to financial risk, accounts, investment and debts ○ Pensions – membership of, employer-based, private, ○ Attitudes to saving for retirement ○ Total individual wealth 	<p>Explanatory variables</p> <p>For each household member: age and sex, relationship to other household members</p> <p>For household members who are interviewed (16 or over, but not 16-18 in full-time education): economic status, education and employment, numerical ability, income</p> <p>At household level: Number of adults, number of children, area, family type, household income, household assets, tenure, total debt</p>	<p>Comments on: Analysis, Representativeness Sample,</p> <p>Launched in 2006, this longitudinal survey of private households collects information on financial and non-financial assets of households and gathers detailed information on wealth components such as savings, pensions, mortgages and debt. The survey will ultimately provide the government, academics, analysts and other organisations with the means to assess the wealth and indebtedness of households and individuals in Great Britain. Additionally, it is cited in the second Pension Commission report as being a prime source of data for monitoring individual pension provision and will feed into future pension policy.</p> <p>Fieldwork for the first wave sample will run over two years from June 2006 and involve 32,000 households. The wave two interviews will take place two years after the initial</p>

interview. In order to capture quick changes in debt, an additional follow-up survey of households in heavy debt will be conducted one year after their first interview.

In addition, one of the policy interests is to have a better understanding of households at the higher end of the wealth distribution – as such these households are being over-sampled – a target of 4,500 household above the top wealth decile for wave 1.

The sample was restricted to Great Britain and excludes Scotland north of the Caledonian Canal, the Scottish Islands and the Isles of Scilly. 1200 PSUs were sampled in the first year, including 109 in Scotland. From each sampled PSU, 26 addresses were sampled yielding a Scottish sample of approximately 5500 households at wave 1. All adults aged 16 and over (excluding those aged 16-18 in full-time education) are interviewed in each responding household.

Workplace Employee Relations Panel Survey (WERS)
(the project was re-named from Workplace Industrial Relations Survey (WIRS) to WERS in 1998 to reflect a change in coverage and approach)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We live in a Scotland that is the most attractive place for doing business in Europe</p>	<ul style="list-style-type: none"> o Financial performance at industry and organisation level o Number of employees o Equal opportunities policies o Family-friendly working o Flexible working o Workforce composition by occupational classification o Trade union representation and membership o Reasons for workforce reductions <p>Change over time in the proportion of establishments offering/exhibiting the following:</p> <ul style="list-style-type: none"> o Equal opportunities policies o Family-friendly working o Flexible working <p>Measures of:</p> <ul style="list-style-type: none"> o Management and employee relations o Employee consultation/organisational management o Dispute and grievance procedures 	<p>Information at the level of the workplace/organisation includes: number of employees, gender of employees and full-time/part-time split, workforce composition (by occupational classification), sector, main activity of establishment, formal status of establishment, ownership, trade union membership, equal opportunities policies, family-friendly, flexible working</p>	<p>The Workplace Employment Relations Survey is a series of surveys that aims to provide a nationally representative account of the state of employment relations and working life inside British workplaces. The survey series is jointly sponsored by the Department of Trade and Industry (DTI), the Economic and Social Research Council (ESRC), the Advisory, Conciliation and Arbitration Service (Acas), and the Policy Studies Institute (PSI). Previous surveys were conducted in 1980, 1984, 1990 and 1998.</p> <p>The first wave of data collection for the 1998-2004 panel study consisted of an initial 'Basic Workforce Data Sheet' providing organisation information, a 2 hour interview with a senior employee representative, and self-completion questionnaires for up to 25 employees. The second wave involves a Basic Workforce Data Sheet and a shorter</p>
<p>We realise our full economic potential with more and better employment opportunities for our</p>			

people

Management interview.

The panel examines changes over time and asks how and why these changes occurred.

The overall study includes two segments. The first segment includes 5 cross-sectional studies - 1980, 1984, 1990, 1998 and 2004. The second segment includes four separate panel studies: 1980-1984, 1984-1990, 1990-98 and 1998-2004.

For the purposes of the second-wave interview, a continuing workplace was defined as one that was in-scope at both timepoints and that had continued to operate throughout the intervening period.

In 2004, the cross-sectional survey included 222 establishments in Scotland. A total of 145 Scottish establishments were selected for participation in the 1998-2004 panel study. Of these, 85 were followed up successfully in 2004. 218 Scottish establishments were included in the 1990-1998 panel study, 142 were followed up in 1998.

West of Scotland 11 – 16 & 16+ Study: Teenage Health (WoS1116)

Relevant National Outcomes	Related variables or areas	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>Our children have the best start in life and are ready to succeed</p>	<ul style="list-style-type: none"> o Health o Self-esteem and self image o Behaviours related to health (diet, exercise, smoking, drinking, experience of drugs) o Family life o School o Leisure activities o Friends o Predictions for the future. o Chronic illness o Parental occupation o Height, weight and respiratory function. o Feelings and emotions. 	<p>Age, sex, parental health, family background/circumstances, schooling</p>	<p>This school-based health study, part of the wider MRC West of Scotland research programme, followed a cohort of young people living in a mainly urban area in Glasgow City. Cohort members were recruited 1994 during final year of (mainstream) primary school (age 11) and followed through the transition to secondary school until the end of statutory education at age 15/16 in 1999.</p>
<p>We live longer, healthier lives</p>	<ul style="list-style-type: none"> o Health o Self-esteem and self image o Behaviours related to health (diet, exercise, smoking, drinking, experience of drugs) o Chronic illness o Parental occupation o Height, weight and respiratory function. o Feelings and emotions. 		<p>Data was collected directly from the cohort members via self-complete questionnaires at ages 11, 13 and 15. Brief Nurse interviews were also conducted.</p>
<p>We have tackled the significant inequalities in Scottish society</p>	<ul style="list-style-type: none"> o Health o Self-esteem and self image o Behaviours related to health (diet, exercise, smoking, drinking, experience of drugs) o Family life 		<p>Additionally, at age 11, parents also completed a questionnaire. Class teachers also filled in single page questionnaires about the behaviour and achievements of the child and head teachers completed questionnaires</p>

	<ul style="list-style-type: none"> o School o Leisure activities o Friends o Predictions for the future. o Chronic illness o Parental occupation o Height, weight and respiratory function. o Feelings and emotions o Questions to parents on: o Current and earlier health history o Family background and circumstances o Schooling and aspirations/ predictions for their child's future. 		
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Health o Self-esteem and self image o Behaviours related to health (diet, exercise, smoking, drinking, experience of drugs) o Family life o School o Leisure activities o Friends o Predictions for the future. o Chronic illness o Parental occupation o Height, weight and respiratory function. o Feelings and emotions o Questions to parents on: o Current and earlier health history 	<p>about the school environment.</p> <p>At age 15, as well as the standard self-complete questionnaires, study members also completed an interactive, computer-administered interview about their feelings and emotions.</p> <p>In the 16+ study, study members were invited to attend 'survey centres' where they were interviewed. Some were visited at home. Final data collection, in 2006, was via a self-complete postal questionnaire.</p> <p>At age 11, 2586 (1,335 boys and 1,251 girls) took part, at age 13 the number was 2,371 and at 15 it was 2,196. The majority (2,063) took part at all three stages.</p> <p>Within 16+, 1,258 took part in the interviews at ages 18-20 and 596 returned a postal questionnaire at age 22.</p>	

	<ul style="list-style-type: none"> o Family background and circumstances o Schooling and aspirations/ predictions for their child's future. 		
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Head teachers completed questionnaires about the school environment. 		

West of Scotland Twenty-07 Study (WoS 2007)

Relevant National Outcomes	Related variables or topics	Explanatory variables	Comments on: Analysis, Representativeness Sample,
<p>We live longer, healthier lives</p>	<p>o Self reported health: wellbeing, illness, chronic conditions, disability, mental health, use of medication</p> <p>o Physical health: height, weight, waist & hip, BP, LF</p> <p>o Health behaviours: diet, exercise, smoking, alcohol, drugs, sexual health, preventions, social participation, leisure, criminal activities</p> <p>o Biological samples: immune system (1995 only), risk factors for CVD, diabetes and obesity (new for 2007), measures of liver and kidney function, full blood count, blood cell ageing (new for 2007)</p>	<p>Data can be analysed to explore the effects of social class, lifestyle and life events on health. Some explanatory variables include: Social class, gender, age, area of residence, family structure, ethnicity, employment, income, home ownership, car access, perceived financial hardship and reported standards of living (e.g. ownership of material possessions such as a television and washing machine).</p>	<p>The West of Scotland Twenty-07 Study: 'Health in the community', funded by the MRC and CSO, was set up in 1986 in order to investigate the reasons for differences in health by socio-economic circumstances, gender, the place where people live, age, ethnic group and family type.</p> <p>There have been 5 main waves of data collection involving face-to-face interviews in study members' homes followed by a nurse visit incorporating a range of physical measurements. These took place in 1987/88, 1990/92, 1995, 2000-04, and 2007/08. A number of 'interim' postal surveys, sometimes only with particular cohorts, have also been conducted.</p>
<p>We have tackled the significant inequalities in Scottish society</p>	<p>o Self reported health: wellbeing, illness, chronic conditions, disability, mental health, use of medication</p> <p>o Physical health: height, weight, waist & hip, BP, LF</p> <p>o Health behaviours: diet, exercise, smoking, alcohol, drugs, sexual health, preventions, social participation, leisure, criminal</p>		<p>The basic design of the Study involved recruiting three cohorts (groups) of volunteers, each group born twenty years apart. Members of the oldest cohort were born around 1932,</p>

	<p>activities</p> <ul style="list-style-type: none"> o Biological samples: immune system (1995 only), risk factors for CVD, diabetes and obesity (new for 2007), measures of liver and kidney function, full blood count, blood cell ageing (new for 2007) o Beliefs, attitudes and values about health: illness, knowledge, Self esteem, control over life and health, worries, life satisfaction, opinions 	<p>those in the middle cohort were born in 1952, and those in the youngest cohort were born in 1972.</p> <p>Regional sample: In 1987/88 around 1000 people in each of three age cohorts (aged 15, 35, and 55) were sampled from 52 postcode sectors in Central Clydeside Conurbation (including City of Glasgow). Postcode sectors reflect a spread of social advantage and disadvantage. Participants followed up over 20 years, even if they have moved, each surveyed five times: four surveys already taken place and the fifth and final is between Autumn 07 and Summer 08. By the final wave in 2007/8, they are aged 35, 55, and 75 respectively.</p>
<p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o The above health data o Family structure and household composition, o Housing tenure and conditions o Ownership of household goods o Level of housework and caring responsibilities o Family health o Employment, Occupation and work environment o Income o Family networks and social support o Life events e.g. recent marriages, deaths, new babies, etc. 	<p>Locality sample: More intensive study on 2 localities in Glasgow City with contrasting socio-residential characteristics, explore impact of place of residence on health. Initial sample sizes around 300 per age group per locality in 1987/8, 1992, 1997 and 2000/3 and finally 2007.</p>
<p>We live in well-designed, sustainable places where we are</p>	<ul style="list-style-type: none"> o Area of residence (questions on access to services, 	

<p>able to access the amenities and services we need</p>	<p>housing, neighbourhood) <input type="checkbox"/> Use of health care services <input type="checkbox"/> Beliefs about control over life and health</p>		
<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<p><input type="checkbox"/> Use of health care services <input type="checkbox"/> Use of medication <input type="checkbox"/> Beliefs about control over life and health</p>		
<p>We value and enjoy our built and natural environment and protect it and enhance it for future generations</p>	<p><input type="checkbox"/> Housing tenure and conditions</p>		

Work and Pensions Longitudinal Study (WPLS)

Relevant National Outcomes	Related variables and topics	Explanatory variables	Comments on: Analysis, Representativeness	Sample,
<p>We realise our full economic potential with more and better employment opportunities for our people</p> <p>We are better educated, more skilled and more successful, renowned for our research and innovation</p> <p>We have tackled the significant inequalities in Scottish society</p> <p>We have improved the life chances for children, young people and families at risk</p>	<ul style="list-style-type: none"> o Work and benefit history, duration of employment, duration of benefit dependency o Employment-related training designed to improve chances of employment o Work and benefit history allows identification of long-term unemployed o Number of children of claimant o Age of youngest child o Family type (5% sample) 	<p>Age and gender of claimant, income, area, work and benefit history</p>	<p>Introduced in January 2004 and enhanced in October 2005, this study links benefit and programme information held by DWP on its customers, with employment records from HMRC.</p> <p>The aims of the study are focussed around supporting the DWP's agenda for Child Poverty, Welfare to Work, and Retirement Income planning.</p> <p>The data provides a single client view, with history, allowing client group and across client group longitudinal analysis.</p> <p>The survey contains a 100% sample of all DWP clients and provides, for every person,:</p>	

<p>Our public services are high quality, continually improving, efficient and responsive to local people's needs</p>	<ul style="list-style-type: none"> o Interventions from Jobcentre Plus 	<ul style="list-style-type: none"> o Benefits or pension they first claim and any subsequent ones o Any help or interventions they receive from Jobcentre Plus o Whether they go into work when they leave benefit o Whether they return to benefit o Key information about their income o Key personal details o Housing/Council Tax benefit and Tax Credits for DWP clients <p>A more detailed 5% sample is also available.</p>
--	---	--

ISSN 0950 2254
ISBN 978-0-7559-7294-4
Price £5.00

www.scotland.gov.uk/socialresearch

The text pages of this document are produced from 100% Elemental Chlorine-Free material.
The paper carries the Nordic Ecolabel for low emissions during production, and is 100% recyclable.

RR Donnelley B58354 11-08

