
Beyond 2011: assessing alternatives to a traditional census

Local Authority Research and
Intelligence Association (LARIA)
conference,
22 February 2012

Head of Demography Division
National Records Scotland (NRS)

Overview

- Background
- Statistical options
- Use of admin data sources
- Record linkage
- How we protect privacy

Key Drivers

- Cost and viability of traditional census
- User needs and expectations: quality and efficiency
- New opportunities: technology and data
- House of Commons Treasury Committee Report 'Counting the Population', 2008

McLelland Review

‘Although sensitive to information protection and privacy issues, the citizen would expect that public bodies will share and move information across internal boundaries, particularly where there is an advantage to the citizen or the community when this happens’

Purpose and Scope

- To explore the potential of improving the quality of population and socio-demographic statistics after the 2011 Census
- To report in 2014 on feasibility research (phase 1), followed by a longer term programme of work to pilot, and implement an alternative model(s)

Successful Scottish Spending Review bid, Sept 2011

- Assessing alternatives to the census
- Wider data linkage framework to support social policy research

Office for National Statistics (ONS) Beyond 2011 programme for England & Wales established April 2011

Beyond 2011 : Statistical options

Census options

Traditional Census (long form to everyone)

Rolling Census (over 5/10 year period)

Short Form (everyone), Long form (Sample)

Headcount + Annual Survey (US model)

Administrative data options

Aggregate analysis

(Intermediate) Sample linkage e.g. 1% of postcodes

100% linkage to create 'statistical population spine'

Survey option(s)

Address register + Survey

NATIONAL RECORDS OF SCOTLAND

preserving the past; recording the present; informing the future

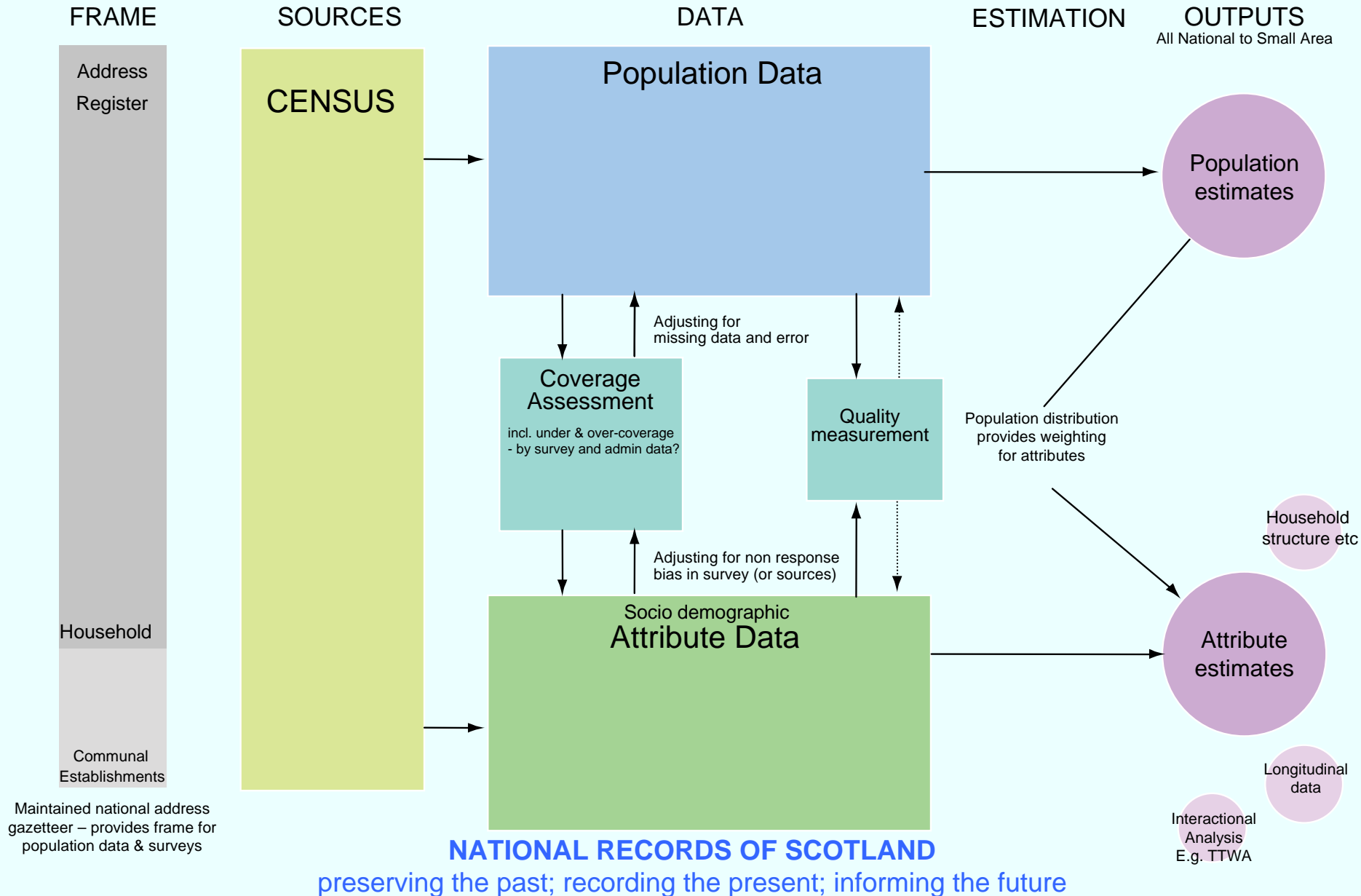
Record Linkage

- The traditional census involves a number of data collections and uses identified records and record linkage in the production process
- Census uses: Scottish Longitudinal Study, Scottish Health and Ethnicity Linkage Study
- Organisational and technical infrastructure for the traditional census can be applied
- This project: a wider range of sources set up for other, administrative purposes which can be joined together

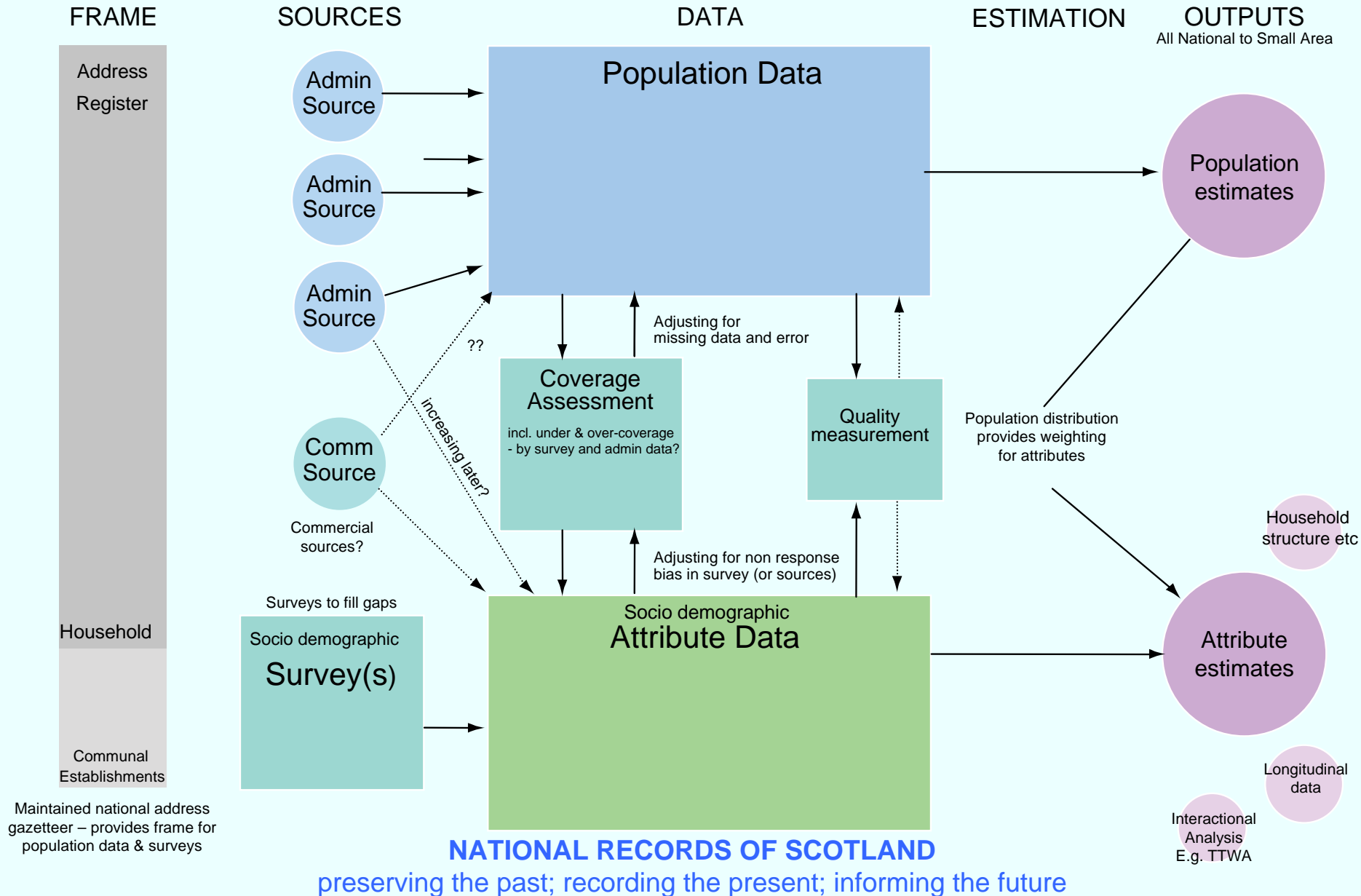
Data sources being considered

- NHS Central Register
- Community Health Index
- Higher Education Student Record
- Further Education Student Record
- School Census
- Electoral Register
- Department of Work and Pensions (DWP)/Her Majesty's Revenue and Customs (HMRC) Customer Information System (CIS)
- National Insurance No allocations to migrant workers
- Surveys
- Address registers (Census and One Scotland Gazeteer)
- Other local data

Beyond 2011 – statistical options



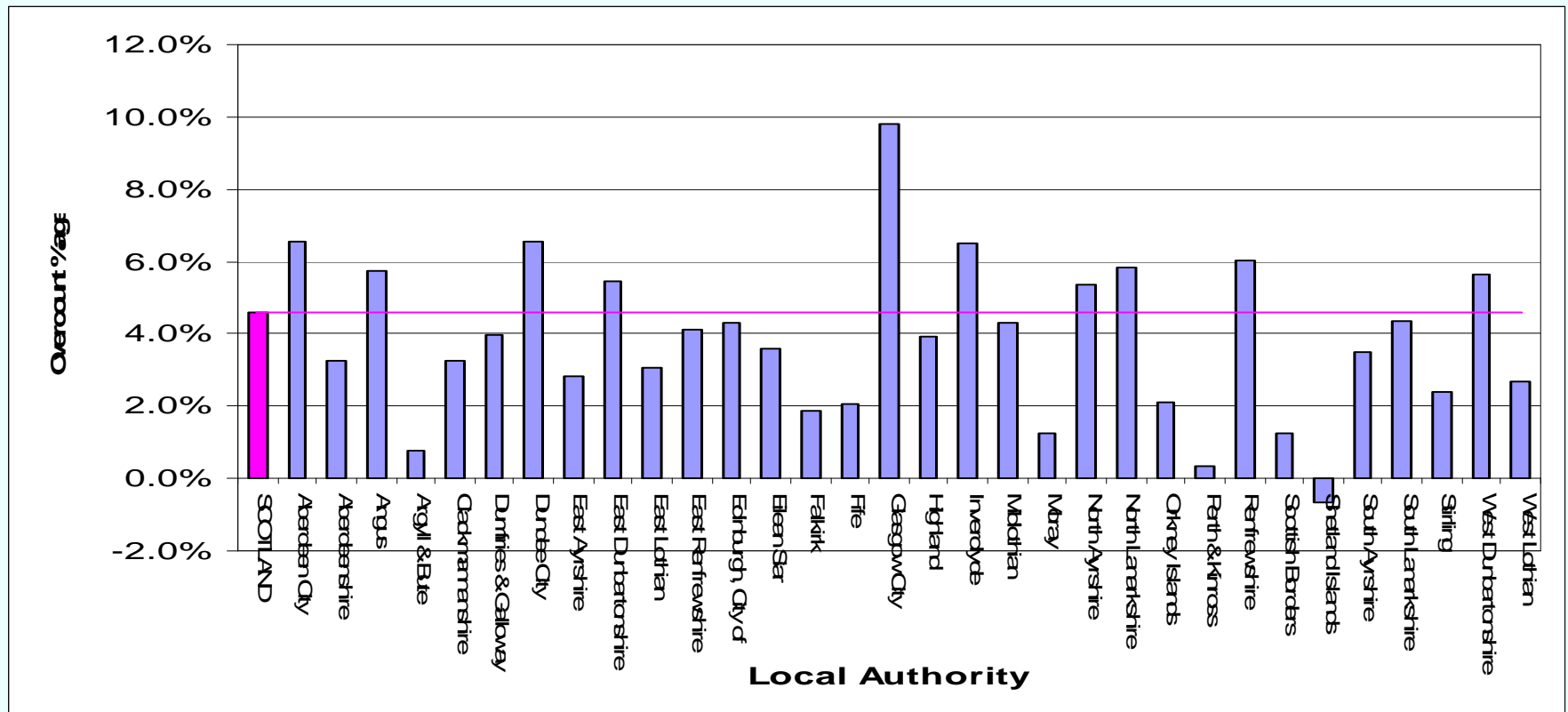
Beyond 2011 – statistical options



Challenges in using admin data

- Collected for specific purpose, rules and definitions used not usually consistent with the needs of estimating resident population
- Coverage: geographic or demographic
- Timing and currency: variable
- Quality (completeness, accuracy, consistency): often unknown
- No cross-systems consistency

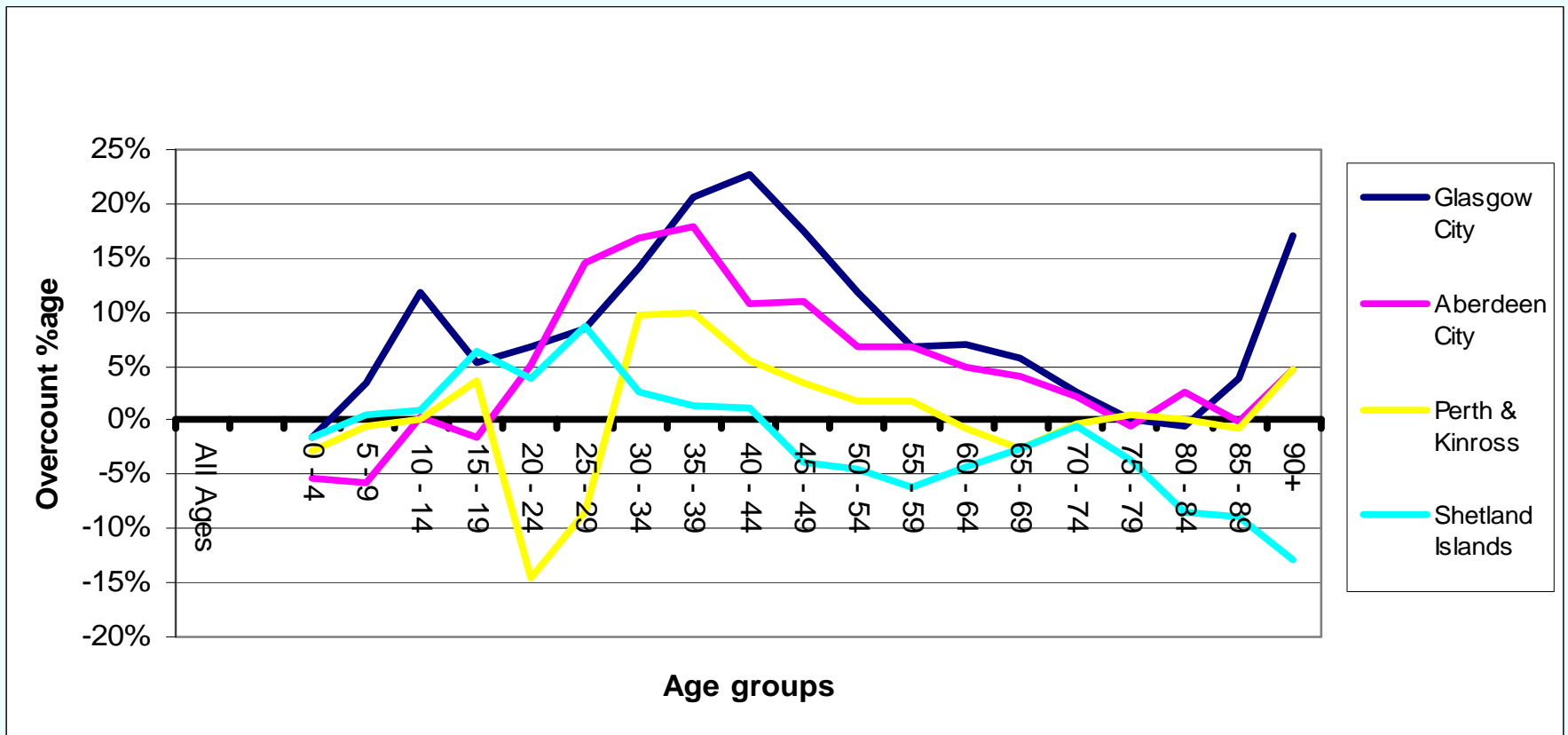
National Health Service Central Register (NHSCR) population counts compared with NRS Mid-Year population estimates: 2010, Council areas, % difference



NATIONAL RECORDS OF SCOTLAND

preserving the past; recording the present; informing the future

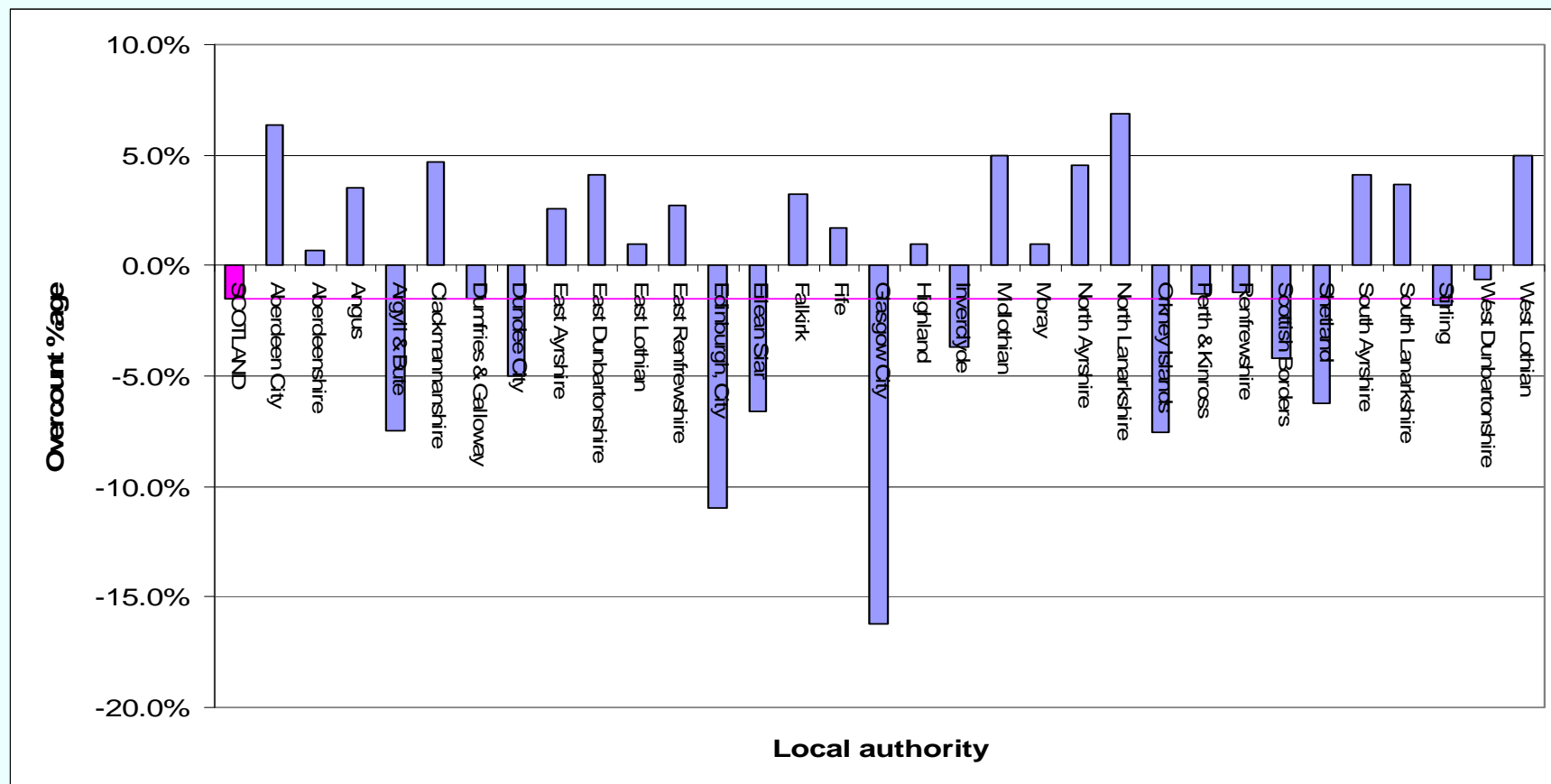
NHSCR population counts compared with NRS Mid-Year population estimates: 2010, age, % difference



NATIONAL RECORDS OF SCOTLAND

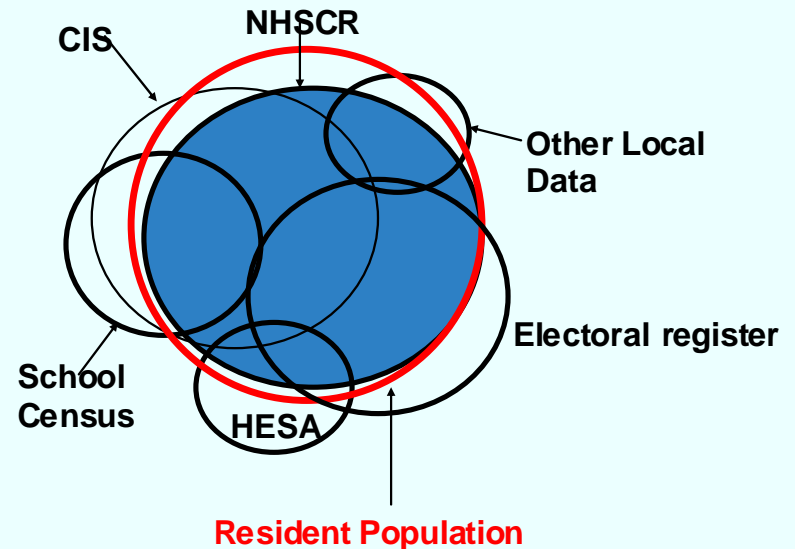
preserving the past; recording the present; informing the future

DWP CIS population counts compared with NRS Mid-Year population estimates: 2010, Council areas, % difference



Main conclusions

- No source uniquely capable of providing a solution
- Need to use in combination
- Good understanding of the relevant quality characteristics is a key prerequisite



The research: process and objectives

- Link each source with the 2011 census to help understand coverage and quality
- Build a prototype ‘statistical population spine’ (a count by age, sex and small area) by merging two or more sources
- Assess against a benchmark.
 - Two options: prototype is independent of the 2011 census (may not be possible for a while) or prototype uses census information (more likely in the short term)

Record Linkage

- Bring together records which are likely to belong to the same person
- In the absence of universal person ID number using
 - Name
 - Address (postcode)
 - Date of Birth
 - Genderand a history of name and address where available
- The only way to ensure that people with records in more than one source are not double-counted

Protecting privacy and confidentiality: legal safeguards

- | | |
|---|---|
| <ul style="list-style-type: none">• 1920 Census Act• Statistics and Registration Service Act 2007• Data Protection Act• Human Rights Act | <ul style="list-style-type: none">• Confidentiality provisions: unlawful disclosure of personal data is a criminal offence• Purpose: processing for statistical purposes only. No feedback to originating administrative systems or use for operational purposes |
|---|---|

Protecting privacy and confidentiality: technical and organisational measures

1. Compliance with Her Majesty's Government (HMG) Security Policy Framework: technical, procedural and physical security controls; independent review of security and Information Assurance (IA) process for census 2011 published on the NRS website:
<http://www.gro-scotland.gov.uk/census/censushm2011/policy-and-methodology/index.html>
2. Separation of matching and content data: analysis on de-identified data
3. Minimum data travel: single transfer to NRS required
4. Personnel: security induction and vetting, follow-up training
5. Access control policies
6. Statistical disclosure control for outputs

Protecting privacy and confidentiality: Public engagement and acceptability

- Legal compliance is not enough, not just about data protection
- Viability of a potential alternative solution or the traditional census itself is dependent on public trust
- Public acceptability research, consultation and transparency of approach; increase awareness and understand concerns as part of the Privacy Impact Assessment (PIA) process

Summary

- Clear public benefit
- Minimum information necessary would be used and processing would be tightly specified
- Under strict legal constraints
- Technical and organisational measures in place to protect confidentiality
- Transparency and Public Awareness being carried out

Not just a privacy threat

- ‘Persons, households and firms can live in peace, they are not harassed with unnecessary inquiries. Data security is better because of the reduction in the number of persons handling the data... Only the computer ‘sees’ the data because it is all in an electronic format’. Register Based Statistics in the Nordic Countries, UN 2007
- ‘There is evidence that the public is more relaxed about privacy, particularly as a value to be traded off against good or improved public service, than experts and privacy campaigners often realise (cf. Kelsey 2009, Bradwell 2010)’ Kieron O’Hara Review of Privacy and Transparency, 2011