

Assessing and Communicating the Quality of Longitudinal Surveys

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Themes

Considerable analytic advantages of longitudinal survey data

Coupled with considerable design complexities – especially for household panels

Brings challenges in assessing and communicating quality

Quality Framework for Longitudinal Surveys

Relevance

Accuracy

Timeliness

Accessibility

Interpretability

Coherence

Costs

*Dimensions not specific to
longitudinal surveys;
But some of the issues are.*

Specific Issues I

Multiple and changing definitions of the study population. Population changes over time and between analyses. Issues relate to the treatment of deaths, births, emigrants, immigrants, reclassification (emigrants/ immigrants to sub-populations) etc.

Specific Issues II

Impact of item non-response. Many longitudinal analyses rely on measures collected on a number of occasions. Proportions providing a valid measure on every occasion can be substantially lower than proportions providing a valid measure on any one occasion.

Specific Issues III

Changing relevance of data items and variables.

Longitudinal surveys can encounter conflicts between relevance and consistency – particularly if the survey is long-term.

Specific Issues IV

Changes in technology, personnel, responsibility.

Not trivial. Requires appropriate planning, documentation, legal arrangements, etc. Issues of compatability and consistency.

Relevance

Were the right data collected? Fading relevance vs. consistency.

Were they collected for the right units? Sample structure; frequency and timing of waves.

Were they collected in the right way? Issues of validity; conflict between cross-sectional relevance and longitudinal consistency (e.g. updating of classifications)

Accuracy

Sampling error. Can be different for different (cross-sectional and longitudinal) populations within the same survey.

Non-response error. Ditto.

Instrument error. Inconsistency of design over waves; dependent vs. independent questioning.

Respondent error. Recall periods and wave frequency.

Accessibility

Ease with which outputs can be located.

Suitability of access form/ medium.

Barriers/ restrictions.

Longitudinal surveys typically have complicated data structure, large data files, up-dating/ changes over time to data.

Quality Profile

A collection of information about relevant quality aspects of a survey / data set / statistical product

US Examples:

- Survey of Income and Program Participation (SIPP: 1998);
- American Housing Survey (AHS: 1996);
- Schools and Staffing Surveys (SASS: Kalton *et al* 2000)

Contents

Relevant to whom?

What is relevant?

- *Identify users*
- *Identify users' needs*

Users

- *Users:*
 - Data analysts (present and future)
 - Research funders
 - Survey designers and implementers
 - Survey funders
- *Information regarding “fitness for purpose”*
- *Wide range of information!*

Template Quality Profile

14 sections.

Description of information to be presented in each.

Examples follow.

Sample Design (section 3)

Definition of each target population.

Initial sample selection procedures.

Procedures for subsequently adding to or removing from sample.

Size of eligible and responding sample at each wave and for each component of each wave.

Distribution of relative selection probabilities and explanation.

Etc....

Data Collection (section 4)

Field work dates for each wave/ component.

Nature and results of fieldwork QC procedures.

Outcome rates for each wave/stage and cumulatively, to include eligibility, contact, co-operation, refusal, response rates; weighted and unweighted .

Summary of levels of item non-response, ... to include (for key repeated items) the proportion of cases with the item missing for 1, 2, 3 etc waves.

Etc....

Measurement error (section 13)

Analyses of ...

...quality of recall data,

...error in repeated measures,

...conditioning,...

Likely sources of measurement error in derived variables, particularly those constructed from data collected at multiple waves .

Etc....

Quality Profile for BHPS Waves 1-10

- *The following examples are from the QP for the BHPS (soon to be updated to wave 13)*
- *This QP is available at*

<http://www.iser.essex.ac.uk/ulsc/methods/standards/qualprof/>

Example 1

- *2.3 Sample Design: 10. Size of responding sample at each wave, and for important analysis subgroups*
- *BHPS, Employment transitions*

	No. of transitions	No. of persons with 1+
Emp – Emp	39,467	7,009
Emp – Unemp	981	891
Emp – Inact	2,372	2,078
Unemp – Emp	1,121	1,004
Unemp – Unemp	1,210	583
Inact – Emp	2,407	2,077

Example 2

- *BHPS, Sequential waves of response*

	Age at wave 1		
	16-24	25-34	35-44
1 or more	1511	2057	1845
2 or more	1237	1816	1640
3 or more	1081	1650	1490
4 or more	997	1549	1417
5 or more	923	1448	1341
6 or more	878	1404	1315
7 or more	840	1354	1285
8 or more	809	1307	1233
9 or more	768	1267	1190
10 or more	735	1223	1141

Example 3

- *BHPS, Stability of interviewing corps*

	No. interviewers	No. new interviewers	No. wave 1 interviewers
Wave 1	243	243	243
Wave 2	237	35	202
Wave 3	216	14	181
Wave 4	217	32	167
Wave 5	217	18	144
Wave 6	212	25	139
Wave 7	218	11	125
Wave 8	228	23	121
Wave 9	212	15	118
Wave 10	212	19	103

Example 4

- *BHPS, Distribution of weights*

	Cross-section weights		Longitudinal weights	
	s.d.	<i>n</i>	s.d.	<i>n</i>
Wave 1	.251	9912		
Wave 2	.338	9549	.297	8721
Wave 3	.386	9021	.321	7905
Wave 4	.390	9057	.329	7525
Wave 5	.423	8816	.335	7169
Wave 6	.418	9117	.339	7059
Wave 7	.426	9088	.346	6898
Wave 8	.403	8894	.348	6719
Wave 9	.419	8756	.354	6533
Wave 10	.451	8626	.361	6304

Example 5

- *BHPS usage via Data Archive / ESDS*

	Total data orders	Orders by new users	Cumulative no. of users
1993	12	11	11
1994	96	75	86
1995	167	102	188
1996	251	117	305
1997	299	118	423
1998	217	103	526
1999	221	119	645
2000	249	120	765

Summary

- *Quality Profiles provide important information to a wide range of ‘users’*
- *May require substantial resources to produce for the first time*
- *But should become part of routine processes*
- *On-line publication is good practice – not least because regular up-dating is necessary*

More information

- *QPs:*

<http://www.iser.essex.ac.uk/ulsc/methods/standards/qualprof/>

- *BHPS:*

<http://www.iser.essex.ac.uk/ulsc/bhps/>

- *MOLS conference (July 12-14 2006):*

<http://www.iser.essex.ac.uk/ulsc/mols2006/>