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Uwe Warner

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General Note

For the sake of readability, masculine pronouns are used throughout this book. This is not intended to be discriminatory.

Contents

1	Harmonising Demographic and Socio-Economic Variables	1
1.1	The Concept of Equivalence	3
1.2	Aim and Structure of the Book	4
2	The Harmonisation Process: Harmonisation Is Not Translation.....	7
2.1	Procedure for the Translation of Survey Questionnaires	7
2.2	Procedure for the Harmonisation of Demographic and Socio-Economic Variables	10
2.3	Rules of Harmonisation	13
3	Existing Measurement Instruments for Data Collection.....	15
3.1	International Standard Classification of Education.....	16
3.1.1	ISCED 1997	16
3.1.2	ISCED 2011	21
3.1.3	Implementation of ISCED in the European Social Survey	22
3.2	Measurement Instruments Developed by the International Labour Organization	32
3.2.1	The 1958 and 1968 Versions of the International Standard Classification of Occupations (ISCO).....	33
3.2.2	International Standard Classification of Occupations 1988 (ISCO-88).....	34
3.2.3	ISCO-88 (COM).....	36
3.2.4	2008 Revision of the International Standard Classification of Occupations (ISCO-08).....	37
3.2.5	ISCO-08 (COM).....	37
3.2.6	Other ILO Instruments	38
3.3	Academic Instruments	41
3.3.1	Prestige and Socio-Economic Status Scales, and Nominal Class Categories	41
3.3.2	The European Socio-Economic Classification (ESeC).....	44
3.4	International Standards for the Measurement of Household Income	46

4	Background Variables for Cross-National Comparative Research: Data Sources	51
4.1	European Commission and Eurostat Data Sources.....	51
4.1.1	The Eurydice Network	52
4.1.2	RAMON, Eurostat's Metadata Server.....	52
4.1.3	Eurostat Main Tables.....	53
4.2	European Surveys Conducted by National Statistical Institutes	54
4.2.1	European Community Household Panel (ECHP)	55
4.2.2	EU Statistics on Income and Living Conditions (EU-SILC).....	57
4.2.3	EU Labour Force Survey (LFS)	58
4.2.4	Household Budget Survey (HBS)	60
4.3	The European Commission's Eurobarometer Surveys	60
4.4	Eurofound's European Quality of Life Survey (EQLS).....	62
4.5	Data Sources of the United Nations Economic Commission for Europe	63
4.5.1	2000/2001 Censuses of Population	63
4.5.2	2010/2011 Censuses of Population	64
4.6	Academic Datasets.....	65
4.6.1	Luxembourg Income Study (LIS)	66
4.6.2	Integrated Public Use Micro Data Series (IPUMS)	68
4.6.3	German Data Forum (RatSWD).....	70
4.7	Academically Driven Surveys.....	72
4.7.1	European Social Survey (ESS).....	73
4.7.2	The International Social Survey Programme (ISSP).....	75
4.7.3	European Values Study (EVS)	76
4.7.4	World Values Survey (WVS).....	77
4.7.5	Council of European Social Science Data Archives (CESSDA).....	78
5	Core Social Variables and Their Implementation in Measurement Instruments	81
5.1	Education	81
5.1.1	Handling Education in National and International Social Surveys	81
5.1.2	Cross-National Comparison of Input-Harmonised Instruments for the Measurement of Education	91
5.1.3	Development of the Hoffmeyer-Zlotnik/Warner Matrix of Education	99
5.2	Labour Status	106
5.2.1	Occupation as an Indicator of Prestige and Socio-Economic Status.....	107
5.2.2	Handling Labour Status in National and International Surveys.....	109
5.2.3	Development of the Hoffmeyer-Zlotnik and Warner Instrument for the Measurement of Labour Status	117

5.3	Occupation and Job.....	122
5.3.1	Measuring Occupation in Cross-National Social Survey Research.....	122
5.3.2	National Occupational Classifications	126
5.3.3	Field Coding ISCO-88	128
5.3.4	From Professional Status to Job Autonomy	132
5.4	Household Income	137
5.4.1	Comparison of Instruments for the Measurement of Income	137
5.4.2	Quality of Income Measurement.....	140
5.4.3	Proposal for an Instrument to Measure Income in Academically Driven Social Surveys.....	148
5.4.4	Measurement of Income in the Fourth Round of the ESS in 2008.....	153
5.4.5	Descriptive Characteristics of the European Comparison of Income Distributions	159
5.5	The Private Household.....	170
5.5.1	The Household Concept in European Official Statistics.....	170
5.5.2	Determination of Household Membership.....	175
5.5.3	Influence of the Definition of Household on Core Socio-Economic Variables	181
5.5.4	The Definition of Private Household in the ESS.....	183
5.5.5	Development of an Instrument for the Measurement of Household Size	189
5.6	Ethnicity.....	193
5.6.1	Handling Ethnicity in National and Cross-National Comparative Social Science Surveys	194
5.6.2	Elements of an Ethnicity Measure	195
5.6.3	Development of an Instrument for the Measurement of Citizenship, Residency Status and Immigrant Background	199
5.6.4	Development of an Instrument for the Measurement of Ethnic Background	204
6	The Proposed Set of Instruments at a Glance.....	209
6.1	The Questionnaire.....	210
6.1.1	Sex.....	211
6.1.2	Age	211
6.1.3	Legal Marital Status	211
6.1.4	Consensual Union	212
6.1.5	Ethnicity	212
6.1.6	Education.....	216
6.1.7	Employment	217
6.1.8	Number of Persons in the Household.....	226
6.1.9	Household Income	228

6.2	Handling the Questionnaire	231
6.2.1	Age.....	232
6.2.2	Legal Marital Status.....	232
6.2.3	Consensual Union (De Facto Union).....	233
6.2.4	Citizenship	233
6.2.5	Residency Status	233
6.2.6	Ethnic Group Membership	234
6.2.7	Integration.....	234
6.2.8	Education	234
6.2.9	Employment.....	235
6.2.10	Number of Persons in the Household	237
6.2.11	Household Income	237
7	Comparability of Currently Available Survey Data	239
7.1	Cross-Survey Comparability of the ESS, ISSP, and EVS.....	240
7.1.1	Education	240
7.1.2	Labour Status	243
7.1.3	Occupation/Job	243
7.1.4	Income	244
7.1.5	Private Household.....	246
7.1.6	Ethnicity.....	247
7.2	Comparability Across Eurostat Surveys	249
	References.....	253
	Index.....	269

List of Abbreviations

ANPE	Agence nationale pour l’emploi, Paris
ASEP/JDS	ASEP/JD Systems banco de datos, Madrid, Spain
BA	Bundesagentur für Arbeit (German Federal Employment Agency), Nuremberg, Germany
BHPS	British Household Panel Survey
BVQ	Background variable questionnaire
CAPI	Computer assisted personal interview
CASMIN	Comparative Analysis of Social Mobility in Industrial Nations
CCEB	Candidate Countries Eurobarometer
CEEB	Central and Eastern Eurobarometer
CES	Conference of European Statisticians
CESSDA	Council of European Social Science Data Archives
CODED	Eurostat’s Concepts and Definitions Database
DSC	Data Service Centre
EB	European Commission’s Eurobarometer surveys
ECHP	Eurostat’s European Community Household Panel
EEA	European Economic Area
EFTA	European Free Trade Association
EGP	Erikson-Goldthorpe-Portocarero class schema
EQLS	European Quality of Life Survey
ESDS	Economic and Social Data Service, UK
ESeC	European Socio-economic Classification
ESS	In academic research: European Social Survey
ESS	In official statistics: European Statistical System
EU	European Union
EUROFOUND	European Foundation for the Improvement of Living and Working Conditions
Eurostat	The statistical office of the European Union, Luxembourg
Eurydice	European Commission Network for Information on Education Systems and Policies in Europe
Eurypedia	European Encyclopedia on National Education Systems

EU-SILC	European Union Statistics on Income and Living Conditions
EVS	European Values Study
FORS	Swiss Foundation for Research in Social Sciences, Lausanne, Switzerland
GESIS	Leibniz Institute for the Social Sciences, Mannheim and Cologne, Germany
GSS	NORC's General Social Survey
HBS	Eurostat's Household Budget Survey
HE	Higher education
HEI	Higher education institution
HZ/W Matrix	Hoffmeyer-Zlotnik/Warner Matrix of Education
ICLS	International Conference of Labour Statisticians
ICPSR	Interuniversity Consortium for Political and Social Research, Ann Arbor, Michigan, USA
ICSE	International Classification of Status in Employment
IECM	Integrated European Census Microdata
ILO	International Labour Organization, Geneva, Switzerland
INSEE	Institut national de la statistique et des études économiques, Paris, France
ipr	ipr Dr. Richard Költringer & Partner OEG – market and public opinion research, Vienna, Austria
IPUMS	Integrated Public Use Microdata Series
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISEI	International Socio-Economic Index of Occupational Status
ISSP	International Social Survey Programme
KldB	Klassifikation der Berufe (German Federal Employment Agency's Classification of Occupations)
KMK	Kultusministerkonferenz (Standing Conference of the Ministers of Education and Cultural Affairs of the <i>Laender</i> in the Federal Republic of Germany)
LFS	Labour Force Survey (Eurostat)
LIS	Luxembourg Income Study Crossnational Data Centre
LIS	Luxembourg Income Study Database
NOC	National occupational classification
NORC	National Opinion Research Center at the University of Chicago, Chicago, IL
NSD	Norwegian Social Science Data Services, Bergen, Norway
NSI	National statistical institute
OECD	Organization for Economic Co-operation and Development
OMB	Office of Management and Budget (part of Executive Office of the President of the United States)
ORBS	Ośrodek Realizacji Badań Socjologicznych Instytutu Filozofii i Socjologii PAN, Warsaw, Poland
PPP	Purchasing power parity

PPS	Purchasing power standard (Eurostat)
PSELL	Panel Socio-Economique ‘Liewen zu Letzeburg’ (Luxembourg Household Panel Study)
RatSWD	Rat für Sozial- und Wirtschaftsdaten (German Data Forum)
RDC	Research Data Centre
ROME	Répertoire Opérationnel des Métiers et des Emplois (French National Employment Agency’s operational list of occupations and jobs)
SCP	Social and Cultural Planning Office of the Netherlands
SHARE	Survey of Health, Ageing and Retirement in Europe
SIOPS	Standard International Occupational Prestige Scale
SLCS	Swedish Living Conditions Survey
SOEP	Sozio-ökonomisches Panel (German Socio-Economic Panel)
StaBA	Statistisches Bundesamt (German Federal Statistical Office), Wiesbaden, Germany
STATEC	Institut National de la Statistique et des Études Économiques du Grand-Duché du Luxembourg
TFEU	Treaty on the Functioning of the European Union
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UIS	UNESCO Institute for Statistics
UNICEF	United Nations International Children’s Emergency Fund
UNICEF IRC	UNICEF Innocenti Research Center
US Census	United States Census Bureau
WVS	World Values Survey
ZUMA	Zentrum für Umfragen, Methoden und Analysen (Centre for Social Survey Research and Methodology), Mannheim, Germany

Country Abbreviations

AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LI	Liechtenstein
LT	Lithuania
LU	Luxembourg (Grand Duchy)
LV	Latvia
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania

SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
USA	United States of America

Chapter 1

Harmonising Demographic and Socio-Economic Variables

The modern age of cross-national comparison of demographic and socio-economic variables began in February/March 1947 when the Economic and Social Council of the United Nations adopted a resolution to publish ‘a demographic yearbook, containing regular series of basic demographic statistics, comparable within and among themselves, and relevant calculations of comparable rates ...’ (United Nations, 1949, p. 7). The first issue of the *Demographic Yearbook* appeared in 1948. It featured mainly demographic statistics on population size, birth and death rates, health and morbidity, international migration, and marital status. Only three tables were devoted to economic variables. They measured the ‘economically active population’ according to sex and age. However, a number of indicators were identified for inclusion in future issues. The *Demographic Yearbook 1948* begins with 22 pages of definitions of the terms used. This represents a first attempt at harmonisation. In the years that followed, a number of specialised agencies of the United Nations developed standard classifications for the cross-national comparison of socio-demographic variables. These instruments include, for example, the International Labour Organisation’s (ILO) International Standard Classification of Occupations (ISCO), the first version of which – ISCO-58 – was published in 1958 (ILO, 1958), and UNESCO’s International Standard Classification of Education (ISCED), first published in the early 1970s (UNESCO, 2003, p. 195).

In the 1960s and 1970s, cross-national comparative social research projects were often basically case studies. Rather than translating a master questionnaire into the languages of the surveyed countries, researchers such as Reinhard Bendix (1963) and Barnes, Kaase et al. (1979) employed country-specific questionnaires. These early cross-national comparative studies revealed the problems associated with comparative measurement. As Bendix (1963, p. 532) noted, ‘Comparative sociological studies represent an attempt to develop concepts and generalizations at a level between what is true of all societies and what is true of one society at one point in time and space.’ The key question in the late 1960s and early 1970s was whether or not social phenomena observed in different social systems were comparable

(Przeworski & Teune, 1970, p. 11). During this phase of cross-national comparative survey research, it was assumed that systematic errors arose as a result of:

- Translation from one language to another,
- Differences between social and political systems, and
- The method of measurement.

Direct measurement by means of a survey calls for a questionnaire that can be understood equally by all those confronted with the instrument (researchers, interviewers, and respondents). This applies both to national and cross-national survey research. However, the problems that arise at the national level are amplified many times over in the case of cross-national comparisons because not only educational barriers and preconceptions but also language and cultural barriers must be overcome. Therefore, Przeworski and Teune (1970, p. 42) noted that ‘Cross-system comparisons of single variables will be dependent upon the units and the scale of measurement within each social system.’

As a first step towards solving this problem, language barriers were overcome. One lesson that had been learnt from the early case studies was that functional equivalence must be established when translating research questions from one language to another. Przeworski and Teune (1970) taught researchers that functional equivalence could be established in a content-valid way by translating the target-language questionnaire back into the source language. Content validity was deemed to have been achieved if a question or item had not lost any of its content after the two-way translation process was completed. With regard to the establishment of functional equivalence, Przeworski and Teune (1970, p. 120) advocated that questionnaires employed in cross-national comparative research should feature a set of core items common to all the systems under study and a set of system-specific items. Although different translation techniques are used nowadays (see Section 2.1), the functional equivalence of translations continues to be established by means of face validity.

The second step towards establishing comparability in cross-national surveys was embarked upon – hesitantly at first – in the 1970s. Mobility researchers began to supplement the ILO’s International Standard Classification of Occupations (ISCO) with comparative occupational prestige scales (Treiman, 1977) or class schemas (Erikson, Goldthorpe, & Portocarero, 1979). These instruments were, in turn, complemented in the 1990s by a social stratification scale (Ganzeboom, De Graaf, Treiman, & de Leeuw, 1992) (see Section 3.3.1). The CASMIN Educational Classification (Brauns, Scherer, & Steinmann, 2003; see Section 5.1.2) is one further fruit of social scientists’ efforts in the 1970s to develop measurement instruments for the cross-national comparison of socio-demographic variables. Although CASMIN is still applied today, social researchers tend to favour UNESCO’s International Standard Classification of Education (ISCED). ISCED 1997 is still in use, but a revised version – ISCED 2011 – is now available.

With a few exceptions, the harmonisation of demographic and socio-economic variables was bracketed out in academic survey research in the 1970s and 1980s. Indeed, it was not until the late 1990s that the harmonisation of socio-demographic

variables for cross-national comparison purposes began in earnest in academically driven research.

Demographic and socio-economic variables are so-called background variables that describe national and cultural concepts and structures. These concepts and structures cannot simply be translated. Besides the three classical variables – sex, age, and education – the number of demographic and socio-economic variables needed to determine relationships between attitudes and social characteristics depends on the research question (see also Braun & Mohler, 2003, p. 112). These background variables serve to typify the respondents and to describe the context in which they act. Therefore, they are the independent variables in social science analysis.

A review of the current situation with regard to the harmonisation of demographic and socio-economic variables reveals the existence of a number of techniques and rules (Hoffmeyer-Zlotnik & Wolf, 2003b). However, generally accepted standardised measurement instruments or indices are available for only a small number of variables and they are limited mainly to classification systems developed by institutions specialising in comparative statistics, namely the ILO, UNESCO, and Eurostat. The present book aims to fill this gap by developing a set of instruments for the comparable measurement of core socio-demographic variables in academically driven social survey research.

The third step towards establishing comparability in cross-national research has not really begun yet. It entails developing Likert-type scales for attitudinal items. This is a methodological sub-field in which debate is shaped more by confessions of faith than by research findings. Efforts to alleviate the paucity of research are currently being made by a group of researchers led by Willem Saris, who are investigating the scaling of responses to attitudinal items in cross-national comparative research within the framework of accompanying research for the European Social Survey (Saris & Gallhofer, 2007).

1.1 The Concept of Equivalence

Because human behaviour is perceived differently across cultures, assumptions with regard to the role of a particular behaviour in different cultural groups must be verified. This is done by assessing functional equivalence.

Functional equivalence has been the central concept in translation theory from the beginning. In an early work on the equivalence of translations, Catford (1965, p. 20) defines translation as ‘the replacement of textual material in one language by equivalent textual material in another language.’ Matthiessen (1999, p. 27) discusses the equivalence of translations in relation to context and environment, noting that ‘the wider the context, the more information is available to guide the translation,’ and ‘the wider the environment, the more congruent languages are likely to be; the narrower the environment, the more incongruent languages are likely to be.’ Therefore the translator must take account of the cultural background against which respondents think and act.

Socio-demographic variables constitute a problem in cross-national comparative research because, as a rule, the researcher is genuinely familiar only with his own culture and the organisational structures in his own country. This is the reason why many researchers restrict their analysis to the three ‘central’ variables: sex, age, and education. Education is surveyed in system-specific categories, and coding is frequently limited to a rudimentary set of categories – namely, ‘low’, ‘medium’, and ‘high’. In order to analyse survey data adequately, a range of other characteristics for the classification of an individual or a group must be equivalently transferred from one culture or national structure to another. Because researchers wish to be able to compare the structures of private households, educational attainment levels, or purchasing power across the countries participating in a cross-national survey, the variables must be measured in a comparable way during the data collection process.

This can be achieved when the national teams participating in a comparative research project agree on what should be measured. This agreement should precede data collection and should be as precise as possible. The variable to be measured should be described exactly – ideally, this description should include a definition of the categories needed for the analysis. This technique harmonises the nationally collected output of the survey. However, this output harmonisation procedure is problematic when the data in each participating country are collected using the instrument usually applied there, and the national research groups attempt to discover comparability post hoc, or to ‘squeeze’ the data to make them comparable.

The alternative to output harmonisation is input harmonisation. In the latter case, a set of instruments with which the variables can be measured in a comparable way across participating countries is developed *before* data collection. A set of instruments such as this forms the centrepiece of the present book.

1.2 Aim and Structure of the Book

This book is addressed to all those who are engaged in cross-national comparative research. It aims to offer information, suggestions, and a set of instruments for the comparable measurement of core socio-demographic variables. The book is organised as follows:

Chapter 2 explains that harmonisation should not be confused with translation. It stresses that harmonisation is a technique that has nothing to do with linguistics, but a lot to do with the analysis of cultural concepts and the social structures of national systems. The chapter concludes with eight rules of harmonisation.

Chapter 3 discusses the main measurement instruments and classification systems currently available to cross-national comparative survey research. For the most part, they have been developed by specialised agencies of the United Nations and have been made available for use in cross-national comparative research. However, a small number of instruments have been specifically designed for academically driven social research.

In Chapter 4, the following data sources for background variables are compared across countries: first, collections of measurement instruments (for example, the classifications database on Eurostat's metadata server RAMON) and data on national structures – such as the information on national education systems provided by the Eurydice Network; second, cross-national surveys conducted by statistical agencies or academic social research bodies; and third, collections of metadata – two international and one German.

The fifth and sixth chapters form the centrepiece of the book. Chapter 5 presents the instruments with which the six core socio-demographic variables are currently measured in cross-national comparative research, and the authors' views on how these variables should be measured. This prepares the ground for the presentation in Chapter 6 of the proposed set of instruments for the measurement of the said variables in cross-national comparative research. Because most of the constituent instruments are input-harmonised, national structures must be included in just a few instances. Hence, it represents an attempt to develop demographic standards for cross-national comparative social research.

Because the harmonisation of socio-demographic data is also of importance in the case of the secondary analysis of cross-national comparative surveys, Chapter 7 begins by exploring the extent to which three major academically driven surveys – the International Social Survey Programme, the European Values Study, and the European Social Survey – measure core background variables such as education, labour status, occupation, etc. in such a way that within-survey and cross-survey comparison is possible. In view of the fact that social scientists tend to use the Eurostat surveys as reference statistics, the chapter concludes with an analysis of comparability within and across surveys conducted under the auspices of Eurostat.

All in all, the present book aims to provide social researchers engaged in cross-national comparative research with a guide to, and a set of standardised instruments for, harmonising core socio-demographic variables.

Chapter 2

The Harmonisation Process: Harmonisation Is Not Translation

As Przeworski and Teune (1970, pp. 96f.) pointed out, ‘Direct measurement is based on definitions by fiat. ... Direct measurement requires that the language of measurement be common to all observations, reflect relationships among the phenomena observed, and be consistently applied.’ Moreover, direct measurement requires that all survey participants (researchers, interviewers, and respondents) understand a stimulus in the same way. In cross-national or cross-cultural comparisons, the first step is to overcome language barriers by translating the instruments for the measurement of attitudes and behaviour – i.e., by transferring them from one language to another.

2.1 Procedure for the Translation of Survey Questionnaires

According to a definition proposed by Wilss (1982, p. 3), ‘Translation is a transfer process which aims at the transformation of a written source language text into an optimally equivalent target language text, and which requires the syntactic, the semantic and the pragmatic understanding and analytical processing of the source language text.’

Researchers soon recognised that the comparative measurement of attitudes and behaviour across countries and cultures required that functional equivalence be achieved between the source language questionnaire and the target language versions, and they developed techniques to establish such equivalence. In the 1970s, functional equivalence was achieved in a content-valid way by means of back-translation. Przeworski and Teune (1970, p. 120) advocated that cross-national comparative surveys should feature both a set of core items common to all the systems under study and a set of system-specific items.

In face validity, you look at the operationalization and see whether ‘on its face’ it seems like a good translation of the construct. This is probably the weakest way to try to demonstrate construct validity. ... We can improve the quality of face validity assessment considerably by making it more systematic (Trochim, 2006).

Nowadays, more differentiated techniques than back-translation are employed. Two examples will be covered in some detail here: the translation guidelines for Round Five of the European Social Survey (ESS) (Dorer, 2010), and the United States Census Bureau's translation guidelines (Pan & de la Puente, 2005).

The European Social Survey guidelines provide for five procedures for the translation and assessment of survey questionnaires: **T**ranslation, **R**eview, **A**djudication, **P**retesting and **D**ocumentation (Harkness, 2003, 2007; see also Harkness, Pannell, & Schoua-Glusberg, 2004).

T The TRAPD process begins with the translation of the questionnaire from the source language into the target language. The recommended practice in the ESS is independent parallel translation by at least two translators, who each produce a translation of the questionnaire. The translators must be skilled practitioners and should, ideally, have experience in translating questionnaires. However, if they do not have such experience, they are offered a training programme. The target language should be their first language or mother tongue.

R The translations are then reviewed by a reviewer, who should have good translation skills, linguistic expertise, and knowledge of survey research. The reviewer involves the translators as a team in the review process.

A The adjudicator is responsible for the final decision as to which version of the translation to adopt. Adjudicators should have an understanding of the research object, have a good knowledge of survey design, and be proficient in both the source and the target languages. The final decision should be reached in collaboration and consultation with the translators and the reviewer.

P In addition to the translation, review and adjudication procedures, the translated questionnaire must undergo pretesting. The minimum requirement is for a test of the full questionnaire on 50 demographically determined respondents. One purpose of the pretest is to reveal comprehension problems. Therefore, in addition to the 50-case pilot study, cognitive pretest methods are recommended.

D The T, R, A, and P procedures must be documented throughout. For example, translators must keep note of problems encountered during the translation process, and reviewers and adjudicators must document their decisions.

The United States Census Bureau's translation guidelines are quite similar to those of the ESS, which is due to the fact that two authors – Janet A. Harkness and Alisú Schoua-Glusburg – worked on both projects. The Census Bureau's guidelines also comprise five steps: **P**repare, **T**ranslate, **P**retest, **R**evise, and **D**ocument (U.S. Census Bureau, 2010):

Pr Step 1 entails the 'up-front preparation for the conduct of the translation,' because it is 'important to clarify initially and in writing the scope and purpose of the translation.'

T After the preparatory work has been completed, the actual translation begins. It is carried out by a team of translators comprising at least two persons who should not only be experienced practitioners but also have experience in translating questionnaires.

P The initial translation stage is followed by a pretest. As Pan and de la Puente (2005, p. 15) point out, pre-testing is an integral and necessary part of the translation process because it ‘helps identify concepts or constructs that are specific to a given language or culture (*emic*) so that the questionnaire designer, along with the translators ... can make appropriate adjustments to survey questions.’ Harkness (2003, p. 41) stresses that ‘Attention should also be paid to any culturally anchored visual components.’ A number of different pre-testing techniques are employed, the main one being cognitive interviews (U.S. Census Bureau, 2003).

R Revision begins after the review of the first version of the translated document has been completed, and continues when the results of the pretest become available. On the one hand, revision is carried out by the translators, who should also be familiar with the principles of questionnaire design and with the survey in question. On the other hand, the translation team includes specialists in questionnaire design and pretesting procedures, and the project manager, who is involved in the decision-making process.

D As in the case of TRAPD, ‘documentation’ comes last. However, as Pan and de la Puente (2005, p. 16) stress, it is: an ongoing process that begins with the written specifications provided to translators during the preparation phase, a ‘necessary aspect’ of the initial translation phase, a ‘key part’ of the pretest phase, and an ‘important activity’ during the revision phase.

Pretesting plays a much greater role in the U.S. Census Bureau guidelines than in the guidelines of European Social Survey because, in the case of the former, revision is based to a large extent on the results of the pretest. The US Census Bureau also places greater emphasis on the importance of documentation throughout the entire translation process, beginning with the production of a set of criteria for achieving a good translation. The goals of a good translation are stated as follows:

1. The source text should be accurately transferred into the target language. In other words ‘meaning(s) and message(s)’ should be accurately conveyed; the translation should have the ‘functional equivalence of the source text’ and should neither add nor omit information provided in the source document.
2. The text should be fluently translated so that it is ‘readable, clear and intelligible’ and conforms to the ‘grammar and discourse conventions in the target language.’
3. The style of the translated text should be similar to that of the source text, the translation should ‘convey the source text in a culturally appropriate manner’, and it should have the same communicative effect as the source text (U.S. Census Bureau, 2010).

The following checklist is derived from the ESS and United States Census Bureau guidelines. It can be used as a guide for the translation of questionnaires:

1. Parallel translations are carried out by at least two professional translators who have training in translating questionnaires and have been provided with a list of criteria for achieving a good translation and information on the nature and scope of the project, the target audience, and definitions of key terms and concepts.

The translations are then compared, discussed, and revised. Documentation takes place at every stage in the process.

2. The edited translation of the questionnaire is then tested for comprehensibility, fluency, and functional equivalence. When so doing, attention should be paid to differences between the culture of the source language and that of the target language. A quantitative pilot study is conducted using a sample large enough to permit statistical analyses. In addition, cognitive pretesting techniques are applied in order to identify and overcome problems caused by culture-specific perceptions.
3. One purpose of the quantitative pretest is to identify false classifications of items or variables.
4. The team that carries out the revision of the translation of the questionnaire on the basis of the results of the pretest should include not only translators proficient in both languages and social researchers experienced in questionnaire design and pre-testing, but also experts in both the culture of the source language and that of the target language. We assume that a separate language version will be prepared for each cultural area. For example, for cultural reasons, it is not possible to use the same German translation in Germany and in German-speaking Switzerland.
5. The final decision on the optimal version of the translation should be reached collaboratively by the translation team. The project manager should partake in the discussions and decisions, keeping the research question in mind at all times.
6. In the interests of scientific rigour and transparency, all decisions made during the entire translation, pretesting, and revision process should be documented.

If these six points are followed, the translation of survey questions about attitudes and behaviours should no longer pose major problems – except, perhaps, when it comes to the Likert-type scaling of attitudinal items. Here, problems may persist because culture-specific perceptions that impact response behaviour have not yet been comprehensively researched.

The translation guidelines presented above do not apply to demographic and socio-economic variables. These variables cannot be translated, because their categories reflect country-specific structures (for example, educational attainment levels in national education systems) or cultural concepts (for example, the criteria for membership in a private household). Therefore they must be harmonised.

2.2 Procedure for the Harmonisation of Demographic and Socio-Economic Variables

Demographic and socio-economic variables reflect the cultural and legal organisation of a society. For example, each culture defines what is meant by a ‘private household’; each society determines on the basis of its cultural tradition how national education and vocational training should be organised; each country organises its labour market, fiscal system, and the social welfare of its citizens. Even the measurement of age depends on the culture and the calendar it uses.

As this brief introduction shows, demographic and socio-economic variables are cultural and/or national concepts and structures. The measurement of such variables calls for a representative classification system for each country or culture. Educational attainment levels, for example, cannot simply be translated. At best they can be paraphrased or deemed to be equivalent to those in other countries. However, the classification of something as 'equivalent' does not imply an exact transfer from one linguistic or cultural system to another. Rather, it means that concepts that are subject to cultural definition and that reflect an organisation based on national law are harmonised with corresponding concepts from other cultures or countries.

Two different strategies can be employed to achieve harmonisation: *output harmonisation* and *input harmonisation*. Output harmonisation takes place after data collection, when an attempt is made to bring national or cultural categories into harmony with the corresponding categories of the other countries or cultures participating in the survey. In the case of input harmonisation, by contrast, a measurement instrument with which variables can be surveyed in a harmonised way across cultures or countries is developed before data collection (see Ehling & Rendtel, 2004, pp. 8f.; Hoffmeyer-Zlotnik, 2008, pp. 7ff.).

Output harmonisation means that harmonisation is carried out *ex post* – in other words after the data have been collected using country- or culture-specific instruments and categories. However, in order to harmonise the output, one needs, first, a common definition of what is to be measured and, second, enough knowledge of the national structures behind the variables and their individual categories to group together equivalent categories in order to develop a new classification system for cross-national or cross-cultural comparison (Hoffmeyer-Zlotnik, 2008, p. 7).

Input harmonisation means that harmonisation always takes place *ex ante* – that is, before data collection – so that the survey can be conducted using an instrument that is equally valid – and, therefore, identical – for all participating countries/cultures (Hoffmeyer-Zlotnik, 2008, p. 8). Input harmonisation takes as its starting point internationally accepted standards such as definitions, concepts, aggregations and classifications, and uses these standards, which are common to all participating cultures/countries, to develop a suitable measurement instrument: 'All survey countries use precisely the same survey procedures in an ideal case. Country-specific particularities are only permissible where they are indispensable' (Information Society Technologies & CHINTEX, 1999, p. 1). However, if too many particularities are indispensable, it is not input harmonisation.

Ex-ante output harmonisation is a special case located between input and output harmonisation. Using an international classification system, such as the International Standard Classification of Education (ISCED), as a reference, it endeavours to collect data with a national instrument in such a way that they can be easily mapped to that international classification system after data collection (see Hoffmeyer-Zlotnik & Warner, 2007, pp. 138ff.; see also Section 5.1 below).

The Statistical Office of the European Union (Eurostat) uses *target structure harmonisation*, a technique employed in the Labour Force Surveys, for example. As Mejer (2003, p. 70) explains, 'data on some of the core variables are collected

according to harmonised statistical methods' in order to ensure comparability of the results. Data on the remaining variables are collected according to the rules of the national statistical institutes (NSIs). Hence, controlled comparability is limited to certain core variables.

There are five steps on the journey from a national concept to a cross-nationally comparable dataset (cf. Hoffmeyer-Zlotnik, 2008, pp. 12ff.). By way of example, let us assume that the aim is the cross-national comparative measurement of education:

1. First, the researchers participating in the research project must agree on what exactly they want to measure with the education variable – that is, what social facts the survey questions about education should capture and measure. Does a rough classification, such as 'low', 'medium', and 'high,' suffice, or is greater differentiation needed? Should the scope be limited to general education, or should vocational education also be included? To which category should higher education institutions be assigned? The present authors use 'education' both as a stratification variable and – closely associated therewith – as an indicator of a person's chances on the national labour market: What level of general and/or vocational educational attainment is needed to enter a certain occupation?
2. The second step entails clarifying the national/cultural concepts behind the education variable in each participating culture or country and the national structures in which these concepts are organised. It must be asked what changes a society or state wishes to bring about in its citizens through education; into what levels education is broken down; what education is offered to the different groups. The way in which education is organised – state or private – must then be clarified; as must the school leaving qualifications offered by the various school types and the educational qualifications that are accepted in lieu of other qualifications. With regard to the project-specific definition of education called for in Step 1, it is important to clarify how vocational education is organised and what qualifications are required for entry into particular occupations.
3. In the third step, a measurement instrument must be selected. Where instruments for the cross-national comparative measurement of the variable in question are available, they can be used. Such instruments exist for several variables. A number of instruments have been developed by specialised agencies of the United Nations, by Eurostat, and by academic groups. The most important of these instruments will be presented in Chapter 3, while in Chapter 5 the authors will describe the instruments that they have developed for the measurement of those demographic and socio-economic variables that they consider to be central. What is important is that the instrument selected should measure exactly what it is supposed to measure. If research during Step 2 above reveals that no suitable measurement instrument is available, the researchers participating in the project must develop such an instrument comprising questions and response categories.
4. In Step 4 the type of harmonisation strategy to be used is chosen, the measurement instrument is selected or developed and the data are collected. If researchers decide in favour of output harmonisation, each participating country chooses a country-specific measurement instrument that fits the research question and is suitable for

cross-national comparison. The data are then collected. In the case of input harmonisation, on the other hand, a measurement instrument must be developed on the basis of the research question if no suitable instrument is available. This instrument must be deployable in all participating countries and must measure the variable in a comparable way. A national measurement instrument cannot be used because it would not measure the same thing in two countries or cultures. After the instrument has been developed and tested, the data are collected. It is important to note that, when designing the instrument, care must be taken to develop item categories that all respondents in all participating countries can answer.

5. If researchers decided in favour of output harmonisation, this takes place in Step 5. The data that have been collected in national categories are mapped to an international classification system, the choice of which is informed by the concept of the survey and the possibilities for comparison and the possibilities for comparison that the classification system offers. As in the case of input harmonisation before data collection, output harmonisation must yield a common classification system that groups together national values in a comparable way according to the common concept.

2.3 Rules of Harmonisation

Generally speaking, the following eight rules should be observed when harmonising socio-demographic variables in cross-national comparative surveys (Hoffmeyer-Zlotnik & Warner, 2011, pp. 39f.; see also Hoffmeyer-Zlotnik, 2008, pp. 11f.; Hoffmeyer-Zlotnik & Wolf, 2003b, pp. 404f.):

1. Agree on a common definition of what you wish to measure with each variable.
2. Make sure that this common definition denotes comparable things in each of the survey countries.
3. Analyse the national concepts and structures behind the variables to be measured. Each researcher should act as a specialist for his or her country.
4. For each individual variable, identify the similarities between the national concepts and structures.
5. Find a valid indicator, or a set of valid indicators, that represent(s) both the variable in question and the specific national characteristics thereof.
6. Decide whether the variable should be converted to a common classification system before data collection begins (input harmonisation), or whether it should be measured with the usual country-specific instrument. In the latter case, the data must be mapped to a common instrument or classification system after collection (output harmonisation). The type of harmonisation strategy to be used is chosen in Step 4 (see Section 2.2 above).
7. If input harmonisation was chosen, test whether the common measurement instrument or classification system realistically reflects the empirical structures in the individual survey countries and is logically related to the jointly developed definition of the variable to be measured.