The Generations & Gender Programme: Constructing harmonized, continuous socio-economic variables for the GGS Wave 1

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GGS data used: Wave 1, version 4.2

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Related Stata datafile: "ContinuousSESvariables_GGP.dta"

When using the continuous and comparative SES variables from this dataset, please refer to this technical working paper: Brons, M.D. & Mooyaart, J.E. (2018). Constructing harmonized continuous socio-economic variables for the GGS Wave 1 (GGP, Technical working paper). The Hague, Netherlands Interdisciplinary Demographic Institute.

1. Introduction

This document describes how we constructed harmonized continuous indicators for the education and occupation variables included in the Generations and Gender Survey Wave 1 (version 4.2, see Fokkema et al., 2016) and the Harmonized Histories (Perelli-Harris et al., 2010). In the GGS and the Harmonized Histories, data was collected about the education and occupation of respondents, but also of their parents. The information about education and occupation has been made available in the form of categorical variables. However, these categorical variables have their limitations when using it for cross-national comparative research.

The education variables are coded according to International Standard Classification of Education (ISCED). The most important disadvantage of ISCED is that the detailed classification per country has often been merged into the 6 or 7 ISCED categories. Due to this, detailed information about educational level is lost. Another disadvantage of the ISCED is that the ISCED cannot be used as a scale, but only as a categorical variable. An indicator that offers the possibility to add more nuance to the education variables is the International Standard Level of Education (ISLED). Its advantage over the International Standard Classification of Education [ISCED] is that the ISLED is more fine-grained, is sensitive to differences in educational systems between countries, and allows for continuous scaling (ranging from 0 to 100). The ISLED scale is constructed by Heike Schröder and Harry Ganzeboom based on European Social Survey (ESS) data. Using the information provided by Schröder and Ganzeboom, it was possible for us to construct ISLED scores based on the educational information in the GGS datasets. In order to obtain the best possible ISLED score, we used the original 'raw' educational categories per country (if available for a specific country), which are not in the standard harmonized GGS files. For more information about the exact construction of the ISLED scale, consult the website of Harry Ganzeboom (www.harryganzeboom.nl), a paper of Schröder and Ganzeboom (2013) and the dissertation of Heike Schröder (Schröder, 2014).

The variables about occupation were provided in the GGS datasets and the Harmonized Histories as ISCO codes. These codes can in principle be converted to many different occupational indicators, such as EGP and SIOPS. We converted these codes into the International Socio-economic Index of occupational status (ISEI) scale, because it is a continuous cross-national comparative indicator which accurately reflects the socio-economic position that an occupation entails in the status hierarchy. The ISEI scale is ranging from 0 to 100. For more information about the ISEI scale, see the website of Harry Ganzeboom (www.harryganzeboom.nl) and the paper by Ganzeboom and Treiman (1996).

A number of examples of papers in which these continuous and comparative variables are used are: Keijer, Nagel and Liefbroer (2016), Mooyaart and Liefbroer (2016), Koops, Liefbroer and Gauthier (2017), Brons, Liefbroer and Ganzeboom (2017), Zoutewelle-Touran and Liefbroer (2017) and Brons and Härkönen (2018).

2. Education: Constructing the ISLED Variables

Information on the highest level of education of the respondent, and the father and mother of the respondent are available for the following countries:

Generations & Gender Survey Wave 1 version 4.2.: Bulgaria, Russia, Georgia, Germany, France, Hungary, Italy, Netherlands, Romania, Norway, Austria, Estonia, Belgium, Australia, Lithuania, Poland, Czech Republic, Sweden

Harmonized Histories: United Kingdom, United States

As mentioned before, the education variables for the respondent and the father and mother of the respondent in the GGS datasets and the Harmonized Histories were provided in the categorical ISCED classification. We used the country specific conversion table presented in the dissertation of Schröder, 'Levels and loadings' (p150 - 215) to convert the ISCED classification into ISLED scores.

The strategies used in this study are as follows. If country-specific 'raw' information was available with regard to the education variables, we used this information to make the ISLED score as detailed as possible, using the country-specific conversion tables from Schröder (2014) to convert educational codes into ISLED scores. By 'raw' information we mean pre-harmonized country survey files of the GGP. These files often hold more detail on specific educational levels than the harmonized GGS country files. Raw information files were available for the following countries: Belgium, Bulgaria, Czech Republic, France, Germany, Hungary, Lithuania, the Netherlands and United Kingdom. The descriptions of the educational levels in the GGS datasets do not always completely match with the descriptions of the educational levels in the tables of Schröder (2014) as derived from the ESS data. We always used the ESS ISLED scores from which the descriptions come closest to the descriptions of the GGS, which sometimes results in taken the average of multiple ISLED scores (all the specific decisions are notified in Table 1-12 below).

If no country-specific 'raw' information was available, we used the ISCED codes in the regular GGS country files to create the ISLED scores. When several educational programs correspond to one ISCED score, but do have a different ISLED score (see table 'Overview of the International Standard Level of Education', page 150 in Schröder, 2014), we took the average ISLED score of those different programs (For all the specific decisions made, see Table 13-22 below). Below, we discuss for all the countries separately what kind of choices we made to construct the ISLED scores.

For the United States, Australia and Georgia, no country-specific conversion tables were available since these countries were not included in the ESS. For these countries, we used a more general table, also from the dissertation of Heike Schröder (p.88), to translate ISCED codes into an ISLED scale (see also Table 23 below).

2.1. Countries for which raw data was available

Table 1 - Constructing the ISLED score using information from raw data, Belgium

Raw category	ISLED	ISCED
Ongeschoold – Geen diploma of getuigsch	23.40	0
Lager onderwijs	24.61	1
Buitengewoon secundair onderwijs: oplei	31.07*[1]	2
Buitengewoon secundair onderwij): getui	31.07*[1]	2
Lager secundair algemeen vormend onderw	39.43*[2]	2
Lager secundair technisch onderwijs	33.80*[3]	2
Lager secundair kunstonderwijs	33.80*[3]	2
Lager secundair beroepsonderwijs	33.80*[3]	2
Hoger secundair algemeen vormend onderw	58.11*[2]	3
Hoger secundair technisch onderwijs	46.58*[4]	3
Hoger secundair kunstonderwijs	46.58*[4]	3
Hoger secundair beroepsonderwijs	46.58*[4]	3

Postsecundair niet-hoger onderwijs	41.34*[5]	4
Hoger niet-universitair onderwijs van h	72.78	5
Hoger niet-universitair onderwijs korte	72.78	5
Hoger niet-universitair onderwijs lange	77.92	5
Hoger niet-universitair onderwijs lange	77.92	5
Hoger niet-universitair onderwijs lange	77.92	5
Hoger universitair onderwijs: Kandidaat	85.81*[6]	6
Hoger universitair onderwijs: Licentiaa	85.81*[6]	6
Hoger universitair onderwijs: Voortgeze	85.81*[6]	6
Hoger universitair onderwijs: Doctoraat	85.04*[7]	5

**1. Not present in Schröder table. It is education for "handicapped". We assign the lowest secondary education score.*

**2. General education gets higher ISLED scores than technical, vocational education in the case of Belgium in Schröder's table.*

**3. Average of 31.07 and 36.53*

**4. Average of 47.52 and 45.64*

**5. We give this a lower score than the categories above as in ISCED-97 it is indicated as ISCED=4, the corresponding score in the table is lower, but we give this score as it matches the ISCED*

**6. There is no differentiation between first and second step tertiary education in Schröder's table for Belgium*

**7. Surprisingly, PhD's/post-graduates have a lower score than the university educated (both first and second tier)*

Table 2 - Constructing the ISLED score using information from raw data, Bulgaria

Raw category	ISLED	ISCED
Has not studied (including illiterate)	18.79	-
Incomplete primary education	19.77	0
Primary education	19.77	1
Basic (pre-high-school) education	25.85	2
High-school (all types)	46.38*	3
Professional education after high school	46.38*	3
Specialist (semi-higher)	58.51	5
Higher education (BA, masters, or another type of specialized higher educational institutions – military, police, etc – with at least 4yrs of education	80.12	5
Ph.D.	85.51	6

**from the Isled documentation and a country specialist it is not clear how the categories "High-school (all types)" and "Professional education after high school" should not be distinguished in ISLED, so group together. (note translated by Katya Ivanova, country specialist)*

Table 3 - Constructing the ISLED score using information from raw data, Czech Republic

Raw category	ISLED	ISCED
Primary education, including those who did not complete: základní vè. nedokonèeného	30.95	2
Secondary no upper diploma: støední bez maturity	44.70*[1]	3

(Higher) completed secondary education: úplné støední s maturitou	58.53*[2]	3
Apprenticeship: nástavbové stadium	58.53*[2]	4
Higher education: vyšší odborné vzdìlání	71.47	4
Tertiary Bc.: vysokoškolské bakaláøské studium	74.51	5
Tertiary MA.: vysokoškolské magisterské studium	79.55	6
Post-graduate: postgraduální studium	83.87	6

**1 average of 42.02 and 47.38*

**2 average of 52.80, 59.64 and 63.14.*

Comment of native speaker Dr. Alzbeta Bartova:

"It is closer to high school education. It is usually targeted at those who did some vocational course but did not do the exams to get diploma.

It's like an apprenticeship (usually starts when they are 15). But if they want to get diploma they can do the 'nastavbove studium' for which they study for about 2 years and which prepares them for the more demanding exams.

It is primarily targeted at the people who did some vocational course."

Table 4 - Constructing the ISLED score using information from raw data, France

Raw category	**ISLED**	**ISCED**
Aucun diplôme - Pas de scolarisation	14.49	0
Aucun diplôme - Scolarité en école primaire	18.47	1-2
Aucun diplôme - sans autre indication	22.40	1-2
Aucun diplôme - Scolarité au collège (de la 6è à la 3è)	27.05	1-2
CEP (certificat d'études primaires) ou diplôme ét ranger de même niveau	27.55	1-2
CAP, BEP ou diplôme de ce niveau - Autres diplômes et titres de niveau CAP ou BEP : brevet de compagnon, aide	31.72	3C
CAP, BEP ou diplôme de ce niveau - BEP, BEPA, mention complémentaire au BEP	34.62	3C
CAP, BEP ou diplôme de ce niveau - CAP, BEP ou diplôme de ce niveau, sans autre indication	34.62	3C
CAP, BEP ou diplôme de ce niveau - CAP, CAPA, mention complémentaire au CAP	35.06	3C
Aucun diplôme - Scolarité au-delà du collège	35.58	1-2
Baccalauréat technologique ou professionnel ou diplôme de ce niveau - Brevet professionnel ou de technicien, BEA, BEC, BEI, BEH, BSEC	44.16	3C
Brevet des collèges, BEPC, brevet élémentaire ou diplôme ét ranger de même niveau	44.35	1-2
Baccalauréat technologique ou professionnel ou diplôme de ce niveau - Baccalauréat professionnel	47.38	3B
Baccalauréat technologique ou professionnel ou diplôme de ce niveau - Baccalauréat technologique (séries F, G, H, SMS, STI, STL, STT)	54.45*	3A
Baccalauréat technologique ou professionnel ou diplôme de ce niveau - Baccalauréat technologique ou professionnel ou diplôme de ce niveau, sans autre indication	54.45*	3C

Baccalauréat général (séries A, B, C, D, E, ES, L, S), brevet supérieur, capacité	61.04	3A
Diplôme de niveau Bac+2 - Diplôme des professions sociales et de la santé de niveau bac+2 (infirmière,...)	68.35	5A/B - 6
Diplôme de niveau Bac+2 - Diplôme de niveau Bac+2, sans autre indication	68.35	5A/B - 6
Diplôme de niveau supérieur à Bac+2 - Diplôme de niveau supérieur à Bac+2, sans autre indication	68.35	5A/B - 6
Diplôme de niveau Bac+2 - Diplôme de 1er cycle universitaire	69.35	5A/B - 6
Diplôme de niveau Bac+2 - BTS, DUT ou équivalent	68.35	5A/B - 6
Diplôme de niveau supérieur à Bac+2 - Diplôme de 2è cycle universitaire	78.54	5A - 6
Diplôme de niveau supérieur à Bac+2 - Diplôme d'ingénieur, d'une grande école	83.03	5A - 6
Diplôme de niveau supérieur à Bac+2 - Diplôme de 3è cycle universitaire (y compris médecine, pharmacie, dentaire), doctorat	92.02	5A - 6

** cannot distinguish, so the average of two ISLED values 53.14 and 55.74 is taken (both have the same label "brevet de technician, baccalauréat de technician, baccalauré")*

Table 5 - Variable: f012000, Germany Raw Data

Schule	**Freq.**	**Percent**
Ja	9,731	97.14
Nein, noch Schüler	134	1.34
Nein, Schule ohne Abschluss beendet	145	1.45
Weiß nicht	4	0.04
Keine Angabe	3	0.03
Total	10,017	100.00

Table 6 - Variable: f012001, Germany Raw Data

höchster Bildungsabschluss	**Freq.**	**Percent**	**Cum.**
01 Haupt- / (Volks-)schulabschluss bzw	3,626	37.26	37.26
02 Mittlere Reife, Realschulabschluss	3,361	34.54	71.80
03 Fachhochschulreife	566	5.82	77.62
04 Allgemeine oder fachgebundene Hochs	2,109	21.67	99.29
05 Anderer Schulabschluss	64	0.66	99.95
Weiß nicht	1	0.01	99.96
Keine Angabe	4	0.04	100.00
Total	9,731	100.00	

Table 7 - Variable: f012002, Germany Raw Data

höchster beruflicher Ausbildungsabschluss B	Freq.	Percent	Cum.
01 kein beruflicher Ausbildungsabschlus	1,284	12.99	12.99
02 noch in Ausbildung	277	2.80	15.79
03 Abschluss einer Anlernausbildung	193	1.95	17.75
04 Abschluss einer Lehre oder gleichwe	5,483	55.48	73.23
05 Berufliches Praktikum	39	0.39	73.62
06 Meister- / Techniker- oder gleichwe	733	7.42	81.04
07 Fachhochschulabschluss	634	6.42	87.45
08 Hochschulabschluss ohne Promotion	945	9.56	97.02
09 Hochschulabschluss mit Promotion	217	2.20	99.21
10 Anderer beruflicher Ausbildungsabsc	67	0.68	99.89
Weiß nicht	3	0.03	99.92
Keine Angabe	8	0.08	100.00
Total	9,883	100.00	

The raw education file contained two education variables from which the educational level could be derived:

Table 8 - Constructing the ISLED score using information from raw data, Germany

Description procedure	ISLED	ISCED
if f012000 == 3 & f012002 ==1 // In ISCED these people get 1 (Germany has no 0 ISCED). I gave them the lowest ISLED score, although this means Grundschule nicht beendet.	26.91	1
if f012001 == 1 & f012002 == 3	28.68	2
if f012001 == 1 & f012002 == 1 if f012001 == 1 & f012002 == 2 // If people are still in education, they get the score for the level of education they already achieved if f012001 == 1 & f012002 == 10 // if people answered 'other vocational course, they get the general score for school if f012001 == 1 & f012002 == 98 // if people don't know their vocational course, they get the general score for school if f012001 == 1 & f012002 == 99 // if people don't know their vocational course, they get the general score for school	37.36	2*
if f012001 == 1 & f012002 == 4 // not able to distinguish between the two, so the mean of two ISLED values 35.44 and 45.50 (landwirtschaftliche + kaufmannische Lehre) is taken	40.47	-
if f012001 == 1 & f012002 == 5	40.9	2
if f012001 == 1 & f012002 == 8 // this combination does not exist in Schröder's table, so the same score as Meisterabschluss	42.27	5

if f012001 == 1 & f012002 == 6 // not able to distinguish between the two, so the mean of two ISLED values 43.96 and 42.27 is taken (berufsfachschulabschluss + meisterabschluss)	43.115	5
if f012001 == 1 & f012002 == 7	48.46	5
if f012000 == 3 & f012002 ==3 // Average of all possible school degrees (28.68, 54.47, 56.77 and 68.90)	52.205	2
if f012001 == 2 & f012002 == 4 // not able to distinguish between the two, so the mean of two ISLED values 47.88 and 58.12 (landwirtschaftliche + kaufmannische Lehre) is taken	53	3
if f012001 == 2 & f012002 == 3	54.47	2
if f012001 == 2 & f012002 == 1 recode a148_isled (.a = 54.50) if f012001 == 2 & f012002 == 2 // If people are still in education, they get the score for the level of education they already achieved if f012001 == 2 & f012002 == 10 // if people answered 'other vocational course, they get the general score for school if f012001 == 2 & f012002 == 98 // if people don't know their vocational course, they get the general score for school if f012001 == 2 & f012002 == 99 // if people don't know their vocational course, they get the general score for school	54.5	2*
if f012001 == 2 & f012002 == 8 // this combination does not exist in Schröder's table, so the same score as Meisterabschluss if f012001 == 2 & f012002 == 9 // this combination does not exist in Schröder's table, so the same score as Meisterabschluss	54.92	5
if f012000 == 3 & f012002 == 4 // Average of all possible school degrees (35.44, 45.50, 47.88, 58.12, 56.77, 60.36, 68.90,71.80)	55.596	3
if f012001 == 2 & f012002 == 6 // not able to distinguish between the two, the mean of two ISLED values 58.55 and 54.92 is taken (berufsfachschulabschluss + meisterabschluss)	56.735	5
if f012001 == 3 & f012002 == 3 if f012001 == 3 & f012002 == 7	56.77	5
if f012000 == 3 & f012002 == 6 // Average of all possible school degrees (43.96, 42.27, 58.55, 54.92, 66.44, 59.76, 73.00, 68.18)	58.385	5
if f012001 == 3 & f012002 == 4 // not able to distinguish between the two, so the mean of two ISLED values 56.77 and 60.36 (landwirtschaftliche + kaufmannische Lehre) is taken	58.565	4
if f012000 == 3 & f012002 == 5 // Average of all possible school degrees (40.90, 59.26, 65.72, 68.90)	58.695	2
if f012001 == 2 & f012002 == 5	59.26	2
if f012000 == 3 & f012002 == 7 // Average of all possible school degrees (48.46, 61.27, 56.77, 72.29)	59.698	5
if f012001 == 3 & f012002 == 8 // this combination does not exist in Schröder's table, so the same score as Meisterabschluss	59.76	5

if f012001 == 3 & f012002 == 9 // this combination does not exist in Schröder's table, so the same score as Meisterabschluss		
if f012001 == 2 & f012002 == 7	61.27	5
if f012001 == 3 & f012002 == 1 if f012001 == 3 & f012002 == 2 // If people are still in education, they get the score for the level of education they already achieved if f012001 == 3 & f012002 == 10 // if people answered 'other vocational course, they get the general score for school if f012001 == 3 & f012002 == 98 // if people don't know their vocational course, they get the general score for school if f012001 == 3 & f012002 == 99 // if people don't know their vocational course, they get the general score for school	62.32	3
if f012001 == 3 & f012002 == 6 // not able to distinguish between the two, so the mean of two ISLED values 66.44 and 59.76 (berufsfachschulabschluss + meisterabschluss) is taken	63.1	5
if f012000 == 3 & f012002 == 8 // Average of all possible school degrees (42.27, 54.92, 59.76, 81.46, 84.49)	64.58	5
if f012001 == 3 & f012002 == 5	65.72	3
if f012001 == 4 & f012002 == 3 if f012001 == 4 & f012002 == 5	68.9	3
if f012001 == 4 & f012002 == 4 // not able to distinguish between the two, I took the mean of two ISLED values 68.90 and 71.80 (landwirtschaftliche + kaufmannische Lehre)	70.35	4
if f012001 == 4 & f012002 == 6 // not able to distinguish between the two, I took the mean of two ISLED values 73.00 and 68.18 (berufsfachschulabschluss + meisterabschluss)	70.59	5
if f012001 == 4 & f012002 == 1 if f012001 == 4 & f012002 == 2 // If people are still in education, they get the score for the level of education they already achieved if f012001 == 4 & f012002 == 10 // if people answered 'other vocational course', they get the general score for school if f012001 == 4 & f012002 == 98 // if people don't know their vocational course, they get the general score for school if f012001 == 4 & f012002 == 99 // if people don't know their vocational course, they get the general score for school	71.11	3*
if f012001 == 4 & f012002 == 7	72.29	5
if f012001 == 4 & f012002 == 8 // not able to distinguish between the two, I took the mean of two ISLED values 81.46 and 84.49 (bachelor + master)	82.975	5
if f012001 == 4 & f012002 == 9	92.52	6

**Most cases fall in this 0 to 6 ISCED category*

Table 9 - Constructing the ISLED score using information from raw data, Hungary

Raw category	ISLED	ISCED
Did not go to school: nem járt iskolába	18.00	0*
Less than 8 years of primary school: kevesebb, mint 8 általános (4, 6 elemi)	21.31	1*
8 years of primary school (4 + 4 system also): 8 általános (4 elemi + 4 polgári)	28.34	2*
Vocational school (trade school, apprenticeship): szakmunkásképzo (szakiskola, tanonciskola)	40.74	3*
Specialised secondary school matriculation: szakközépiskolai érettségi, középfokú technikum	59.93	4*
General secondary school matriculation: gimnáziumi érettségi	58.05	4*
Higher education after secondary school but not college: középiskola utáni felsofokú szakképzés (nem foiskola!)	65.73	4*
College diploma: foiskolai diploma, felsofokú technikum	77.49	5*
University diploma: egyetemi diploma	88.34	5*

**Not all, but most observations fall within this category. We believe that in a substantial number of cases the education variables had been given a too high or too low ISCED by the GGS. Hence, in all categories of ISCED one can find multiple ISLED scores. Since the ISLED is based on the raw education information, we believe the ISLED to be more accurate.*

Table 10 - Constructing the ISLED score using information from raw data, Lithuania

Raw category	ISLED	ISCED
Lower than primary	20.35	0
Primary	25.09	1
Basic education	30.45	2
Vocational without basic – professi	27.90	2
Vocational after basic - only profess	38.18	2
Vocational after basic – certificate	40.67	3
Vocational after secondary – profess	50.80	3
Secondary school without profession	43.83	3
Special secondary before 1991	49.13	4
Professional college	72.86*[1]	4
College	72.86*[1]	5
University	81.24	5
Post graduate studies	95.57	6

**1 professional college/higher education and college are the same, therefore the same isled score*

Table 11 - Constructing the ISLED score using information from raw data, the Netherlands

Raw category	ISLED	ISCED
Incomplete elementary: lagere school niet afgemaakt	16.55	0
Elementary school only: lagere school incl vglo	22.98	1
Lower vocational, lbo, huishschool, lhno	29.34	2
Lower general secondary: mavo, ulo, mulo	45.27	2
Medium general secondary: havo, mms	62.30	3
Upper general secondary: vwo, hbs, atheneum, gymnasium	71.92	3

Intermediate vocational: mbo, kmbo	45.70	3
Higher vocational: hbo, kandidaats	77.93	4
University: universiteit	87.13	5
Post-graduate: postac bv notariaat, artsexamen, dr-titel	94.62	6

Table 12 - Constructing the ISLED score using information from raw data, United Kingdom

Raw category	ISLED	ISCED
No qualification	30.89	1
Other qualification	53.75*1	2
Apprenticeship	44.63	3
CSE grade 2-5, scot grade 4-5	47.71	3
Commercial qualification, no o levels	44.63	3
GCE O levels or equivalent	53.75	3
GCE A levels	64.63	3
Nursing qualification	80.08*2	5
Other higher qualification	57.26*3	5
Teaching qualification	80.08*2	5
First degree	80.08*2	5
Higher degree	91.62	6

**1 This category is given the same ISLED as having an O-level education*

**2 mean of categories "Degree-HNC-teacher training/nursing or equivalent, (80.94 + 79.21)/2=80.08*

**3 related to the category "NVQ4/NVQ5 or equivalent"*

2.2. Countries without raw data, but available in the ESS

Table 13 - Constructing the ISLED score using the ISCED information, Russia

ISCED	ISLED	Description change
0	21.13	
1	22.95	
2	30.36	Average of the categories "incomplete high school" and "Professional education without secondary education" (28.09+32.63)/2=30.36
3	49.52	Average of the categories "completed secondary school", "Professional education on secondary level" and "Several grades of college with no certificate" (40.84+41.62+66.09)/3=49.52
4	53.40	Because table for Russia has no ISCED 4 we assign the general ISCED 4 score
5	75.02	Average of the categories "Spatial technical education", "Completed college by 5-6 grade system" and "Bachelors degree from college", "Post-college education without scientific degree" and "Scientific degree" (50.68+75.73+77.84+88.33+82.50)/5=75.016
6	90.40	Because table for Russia there is no label with doctoral education we assign the general 6a ISCED score

Table 14 - Constructing the ISLED score using the ISCED information, Italy

ISCED	ISLED	Description change
0	11.97	
1	17.10	
2	28.61	
3	57.93	
4	-	
5	77.53	General ISLED score
6	83.20	General ISLED score

The highest codes of Italy (5A-6, 5A & 5A-B, 1701;1702;1703) cannot be related to the table of Italy in Appendix 2.A of Heike Schröder's dissertation. Therefore, we will keep the scores made before, using Table 3.1. No responses for Italy on ISCED-4, all other ISCED categories can all be linked to one ISLED.

Table 15 - Constructing the ISLED score using the ISCED information, Romania

ISCED	ISLED	Description change
0	15.42	
1	19.54	
2	30.90	
3	42.26	Average of "Vocational and apprenticeship school" and "High school (Upper secondary)" (32.75+51.77)/2=42.26
4	66.45	
5	82.25	
6	92.12	

Table 16 - Constructing the ISLED score using the ISCED information, Estonia

ISCED	ISLED	Description change
0	16.11	
1	20.535	Average of categories "Basic education without professional qualifications" and "Primary education" (22.71 + 18.36)/2=20.535
2	36.526	Average of categories "No qualifications", "General basic education [incomplete secondary education]", "Vocational basic education", "Vocational education, 3 year study", "Vocational education, less than 3 years studies" and "Vocational education with 3 or more years study" (37.71+26.05, 26.43+31.94+40.30, 41.10+ 52.15)/7=36.526
3	45.148	Average of categories "General secondary education", "Vocational secondary education", "Vocational education with secondary education", "Vocational-secondary education after acquisition of basic education" and "Professional secondary technical education after basic education" (48.10+42.54+45.10+43.53+46.47)/5=45.148
4	46.80	
5	77.676	Average of categories "Professional secondary/technical education after secondary education", "Higher education", "Higher vocational education", "Professional higher education (diploma study)", "Higher education*", "Bachelor 3 years study [Higher education]", "Bachelor, more than 3 year

		studies", "Master's degree", "2 years Master studies" and "Scientific degree of Master" (59.53+80.09+78.26+77.03+80.24+73.48+79.77+86.05+82.69+ 79.62)/10=77.676
6	91.67	

**There are two "Higher education" labels in the conversion table of Heike Schröder, this one has the showcard label "Bakalaureus (kõrgharidus)"*

Table 17 - Constructing the ISLED score using the ISCED information, Poland

ISCED	ISLED	Description change
0	19.31	
1	27.65	
2	38.43	
3	55.307	Average of "Secondary vocational", "Secondary comprehensive*" (53.76, 55.09, 57.07)/3=55.307
4	64.62	
5	81.09	Average of "First stage of tertiary", "University" and "Tertiary completed" (74.79+83.81+ 84.67)/3=81.09
6	94.28	

** This has two different ISLED scores in the conversion table of Heike Schröder*

Table 18 -Constructing the ISLED score using the ISCED information, Norway

ISCED	ISLED	Description change
0	15.08	
1	33.52	
2	30.44	
3	46.355	Average of "Upper secondary, basic [11th.-12th. class level] "and "Upper secondary, final year [13th. class level+]" (40.94 + 51.77)/2=46.355
4	54.36	
5	80.655	Average of "First stage tertiary, undergrad level [14th.-17th. level]" and "First stage tertiary, undergraduate level 18th.-19th. level]" (74.73+ 86.58)/2=80.655
6	91.75	

Table 19 - Constructing the ISLED score for parental education using the ISCED information, Norway

ISCED	ISLED	Description change
2	33.52	
3	44.378	Average of "Lower Secondary education", "Upper secondary, basic [11th -12th class level]", "Upper secondary, final year [13th. class level+]" and "Post-secondary non-tertiary education [14th class level+]" (30.44 + 40.94 + 51.77 + 54.36)/4=44.378
5/6	84.297	Average of "First stage tertiary, undergrad level [14th -17th level]", "First stage tertiary, undergraduate level 18th -19th level]" and "Doctoral Degree" (74.73 + 86.58 + 91.58)/3=84.297

Table 20 - Constructing the ISLED score using the ISCED information, Sweden

ISCED	ISLED	Description change
1	30.17	Average of "Elementary school, old" and "Elementary school" (25.94, 34.40)/2=30.17
2	38.473	Average of "Lower secondary and elementary school, old", "Vocational school 1963-1970" and "2 year high school" (38.10 + 37.39 + 39.93)/3=38.473
3	52.083	Average of "Vocational high school after 1992", "3-4 year high school prior to 1995" and "Theoretical high school after 1992" (47.09 + 51.60 + 57.56)/3=52.083
4	53.4	List Sweden has no isced-4 so use general isced-4 score of 53.4
5	72.61	Average of "University, no exam", "University, exam less than three years" and "University, exam more than 3 years" (70.79 + 66.55 + 80.49)/3=72.61
6	87.42	Use highest score is Sweden = 87.42

Table 21 - Constructing the ISLED score for parental education using the ISCED information, Sweden

ISCED	ISLED	Description change
0	26.56	
1	30.17	Average of "Elementary school, old" and "Elementary school" (25.94, 34.40)/2=30.17
2-3	45.278	Average ISLED scores falling under ISCED 2 and 3 of previous table
4-5-6	71.14	Average ISLED scores falling under ISCED 4, 5 and 6 of previous table

Table 22 - Constructing the ISLED score using the ISCED information, Austria

ISCED	ISLED
1	16.89
2	30.62
3c	46.38
3a-3b	65.07
4a-4b-4c	72.05
5b	80.38
5a	84.90
6	84.90

In the GGS, a more detailed ISCED classification was available, which we used to convert ISCED to ISLED.

2.3. General conversion table for countries that are not in the ESS

Table 23 - General conversion table for ISCED to ISLED, provided by Heike Schröder (2014)

ISCED	ISLED
0	17.3
1	19.3
2	30.6
3	44.9

4	53.4
5	73.2
6	90.4

The remaining countries: Australia, Georgia and the United States were converted using the general conversion scheme as provided by Heike Schröder in her dissertation (page 88).

3. Occupation: Constructing the ISEI variables

Information on the occupation of the respondent (current and last occupation), and the father and mother of the respondent (when respondent was age 15) are available for the following countries:

Generations & Gender Survey Wave 1 version 4.2: Bulgaria, Russia, Georgia, Germany, France, the Netherlands, Romania, Norway, Austria, Belgium, Australia, Lithuania, Poland, Czech Republic, Sweden

For some countries there was only partial information available. For Estonia and Hungary, we only had information about the occupation of the respondent, not of the parents. For the United Kingdom there was only information about the occupation of parents, but not from the respondent itself. Moreover, for Italy the information about the occupation of parents was not detailed enough (farmers were not included as occupational category), and therefore not included in our dataset.

As mentioned in the Introduction, the occupation variables for the respondent (current and last occupation), and father and mother of the respondent were provided as ISCO-88 codes and converted into the continuous ISEI scale (Ganzeboom & Treiman, 1996; Ganzeboom et al., 1992).

On the website of Harry Ganzeboom an SPSS-syntax is provided, which we used to convert the ISCO-88 codes into an ISEI scale (Ganzeboom, Conversion of Isko-88 into International Socio-economic Index of Occupational Status (ISEI), see http://www.harryganzeboom.nl/isco08/index.htm). For the majority of countries, we could run this syntax, which resulted in an ISEI scale. However, for some countries, difficulties arose in the translation of some ISCO-88 codes to ISEI, as not all codes were known ISCO-88 codes. This problem mainly arose in Bulgaria but was also observed to a smaller extent in some other countries.

First, we created an ISEI score based on the ISCO-88 using the conversion scheme of Harry Ganzeboom (see link above), in which all ISCO codes that could not be converted were assigned an .e, labeled “unknown ISCO score”. We then proceeded by identifying the codes that could not be translated to ISEI codes. Many of these scores are given to people who have retired or are stay-at-home parents. We decided to recode some of the ISCO codes in cases where the label did not match a ISCO-88 description or in cases where the label matched to a ISCO-88 code, but the score did not. The codes start with a digit indicating the type of mismatch and are followed by the 4-digit code as found in the data.

12201 "military forces" ///

20100 "armed forces or unspecified" ///

20110 "armed forces or unspecified" ///

30001 "strange farmers group" ///

30097 "not working because of poor health" ///

30099 "retired" ///

For the codes 12201, 20100, 20110 and 30001 we attempted to match an ISEI score. Observations that had a label “army or unspecified” were assigned an ISEI of 40, matching the ISEI of a soldier. Finally, some had an invalid ISCO code, but containing a reference to farming in the label. These were assigned an ISEI score of 16, corresponding to the ISEI score for a farm laborer. However, checking the correlations between the ISCO and the ISEI variables, it showed that these recodings caused a substantial drop in the correlation. Therefore, we decided to keep these values missing in the ISEI score variable.

A second strategy to improve the number of ISEI values was to use the more crude information of the first digits of the ISCO codes. For all scores between 100 and 9340 which could not be converted to an ISEI score in the first place, the last digit was replaced by a 0 for those ISCO codes that could not be converted to ISEI initially. If the ISCO score could still not be converted into ISEI we also replaced the third digit with 0. We constructed a flag variable indicating whether a respondent had a score on the ISCO variable in the GGS that could not be converted into an ISEI score. These observations were assigned a 1, whereas all other observations received a 0. Not all codes in between 1000 and 9340 (the valid ISCO-88 range) could be recoded, even if one removes the final digit or the final two digits. Thus, not all cases that are flagged are converted to an ISEI score.

The problem of invalid ISCO codes was largest in Bulgaria, but in Russia, Georgia, Austria, Belgium, Lithuania, Poland, Czech Republic, and Sweden invalid codes in one or more of the ISCO variables, leading to translation problems to ISEI were also observed. Sweden had, for instance, raw categories of occupations which could not be translated into an ISCO code, but these categories do have a meaning (for example, housewife).

Moreover, the translation from ISCO to ISEI for respondents, father and mother was problematic in Germany, since there was no ISCO code available, but only country-specific codes to indicate the occupational status. For Germany, there were only five different occupational categories and with the help of Harry Ganzeboom, we assigned a ISCO code that generally represents the occupations in that specific category.

Finally, we checked the correlation between the ISCO and ISEI variables in order to see whether the correlation between the unchanged ISEI and ISCO and our constructed ISEI and ISCO were similar. This indeed turned out to be the case, meaning that we were able to include more observations without changing the meaning of the variable.

4. Codebook variables

Table 24 gives an overview of the variables that are included in the dataset ‘ContinuousSESvariables_GGP.dta’. This constructed dataset can be merged with existing GGP files by using the original identification number (arid) and the country-variable.

Table 24 - Overview of the variables included in the dataset

Variable name	Description
Arid	Original identification number
Acountry	Original country identification number US = 41 = NSFG 2007 – Harmonized Histories UK = 42 = BHPS – Harmonized Histories

Id	Unique identification number id=arid+(acountry/100)
Educ_isled	ISLED score of respondent
Feduc_isled	ISLED score of respondent's father
Meduc_isled	ISLED score of respondent's mother
Occ_isco_l	ISCO score of last occupation of respondent
Occ_isei_l	ISEI score of last occupation of respondent
Occ_isei_l_f	Flag variable whether ISCO code could not be converted into an ISEI score
Occ_isco_c	ISCO score of current occupation of respondent
Occ_isei_c	ISEI score of current occupation of respondent
Occ_isei_c_f	Flag variable whether ISCO code could not be converted into an ISEI score
Focc_isco	ISCO score of occupation of respondent's father at age 15
Focc_isei	ISEI score of occupation of respondent's father at age 15
Focc_isei_f	Flag variable whether ISCO code could not be converted into an ISEI score
Mocc_isco	ISCO score of occupation of respondent's mother at age 15
Mocc_isei	ISEI score of occupation of respondent's mother at age 15
Mocc_isei_f	Flag variable whether ISCO code could not be converted into an ISEI score

5. Descriptive statistics per country

Table 25 shows the descriptive statistics (the mean and standard deviation in parentheses) for both ISLED and ISEI variables of the respondent itself and both parents for each country included in the Continuous SES variables GGP dataset.

Table 25 - Descriptive statistics, means and standard deviations (in parentheses), for the continuous and comparative SES variables

Countries	*Average ISLED resp.*	*Average ISLED father*	*Average ISLED mother*	*Average ISEI resp. (last occ)*	*Average ISEI resp. (current occ)*	*Average ISEI father*	*Average ISEI mother*
Austria*	65.00 (14.85)	57.54 (17.97)	50.05 (19.40)	36.94 (12.61)	43.11 (15.42)	39.51 (15.18)	33.66 (17.20)
Australia	47.87 (19.43)	41.71 (19.31)	37.13 (16.59)	-	48.64 (16.08)	42.01 (16.81)	45.56 (16.51)
Belgium	53.70 (20.05)	43.00 (21.08)	39.55 (18.69)	43.79 (15.00)	48.22 (15.72)	41.76 (15.95)	42.50 (15.81)
Bulgaria	45.03 (17.28)	35.67 (16.43)	35.07 (16.00)	36.09 (15.74)	41.85 (16.12)	32.59 (15.69)	33.66 (17.20)
Czech Republic	50.32 (15.14)	47.82 (14.11)	43.96 (14.20)	39.25 (14.63)	43.59 (15.17)	38.36 (14.20)	37.99 (14.39)
Estonia	52.43 (17.49)	38.97 (17.19)	37.92 (16.78)	38.84 (15.02)	45.33 (16.29)	-	-
France	47.51 (21.05)	34.42 (19.71)	31.95 (17.12)	41.23 (14.33)	44.99 (14.81)	38.19 (14.94)	38.42 (14.49)
Georgia	52.17 (15.45)	44.26 (18.12)	42.88 (17.20)	40.99 (17.83)	40.41 (19.13)	36.62 (18.64)	37.94 (20.07)
Germany	53.82 (15.08)	56.06 (11.99)	49.20 (12.01)	42.07 (9.92)	44.09 (10.72)	40.36 (13.16)	40.15 (10.05)
Hungary	48.35 (18.47)	38.45 (18.49)	35.37 (17.28)	39.36 (14.61)	44.32 (14.95)	-	-
Italy	43.45 (20.19)	25.82 (17.66)	23.92 (15.92)	37.72 (11.68)	44.62 (13.76)	-	-
Lithuania	50.97 (18.59)	38.30 (18.33)	39.50 (19.19)	38.79 (17.68)	44.96 (18.10)	34.54 (17.56)	37.21 (20.25)
Netherlands	55.52 (21.28)	42.98 (22.69)	36.00 (17.67)	44.59 (16.42)	50.74 (16.04)	46.03 (15.81)	39.80 (16.57)
Norway	54.97 (19.54)	47.50 (18.27)	44.82 (16.84)	44.32 (12.51)	48.30 (13.01)	40.14 (14.12)	41.79 (12.71)
Poland	55.82 (16.59)	37.28 (14.62)	40.55 (17.62)	38.52 (15.39)	42.91 (17.58)	33.33 (13.29)	34.59 (15.78)
Romania	41.27 (17.52)	30.10 (15.48)	26.71 (13.07)	34.55 (12.59)	36.96 (15.03)	29.20 (11.69)	30.29 (12.82)
Russia	56.74 (17.11)	40.88 (18.42)	41.03 (19.33)	40.94 (17.43)	44.17 (17.16)	37.48 (15.50)	37.96 (18.62)
Sweden	56.48 (13.34)	44.85 (17.42)	45.09 (17.47)	46.02 (14.70)	47.76 (14.59)	42.28 (16.73)	32.25 (24.31)
UK BHPS	56.61 (16.09)	44.25 (15.87)	41.29 (13.87)	-	-	40.83 (15.02)	41.01 (12.47)
US NSFG*	49.54 (16.83)	50.12 (15.34)	49.06 (14.42)	-	-	-	-

**= The oldest respondents in Austria and United States are born just after 1960, thus the oldest birth cohorts are not included in these countries. This could result in higher averages compared to other countries.*

6. References

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