

Fertility in Austria, Germany, and Switzerland: Is there a common pattern? Online Appendix*

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Online Appendix 1: Supplementary Tables and Figures

Tab. A1: Contribution of childlessness to low fertility and fertility decline in Austria, Germany, and Switzerland among women born in 1940-41 and 1965-66

	Austria	Germany	Switzerland	Germany (East)	Germany (West)
Observed completed fertility and childlessness					
CTFR 1940	2.19	1.97	2.08	1.99	1.97
CTFR 1965	1.71	1.55	1.66	1.60	1.51
Percent childless, 1940 or around	13	11	16	8	12
Percent childless, 1965 or around	17	21	21	10	22
Hypothetical completed fertility of the 1965 cohort					
With no childlessness (family size of mothers)	2.06	1.95	2.09	1.79	1.94
With childlessness level identical to the 1940 cohort	1.80	1.73	1.76	1.65	1.71
With childlessness level of the 1965 cohort in Sweden	1.80	1.70	1.83	1.56	1.70
Fertility decline between the 1940 and 1965 cohort due to rising childlessness					
Absolute	0.09	0.18	0.11	0.05	0.20
Relative (in percent)	19	43	25	12	44

Notes: Data for Austria are based on the 1991 Census data (cohort 1940), and on a combination of the 2001 Census data with the vital statistics data for the period 2001-2008 (cohort 1965). Data for Germany are based on the 2008 *Mikrozensus* survey and pertain to 5-year cohort groups instead of single-year cohorts (1949-53 and 1964-68). Data for Switzerland are based on the 2000 Census for the 1940 cohort (computations excluding women with unknown number of children); and on a time series of period fertility data by birth order for the 1965 cohort. The latter data were estimated by Marion Burkimsher.

Source: Data and computations based on *Statistisches Bundesamt* (2009); *Statistics Austria* (2005); *Human Fertility Database* (2011); vital statistics data provided by Statistics Austria, and estimates of cohort fertility rates in Switzerland by birth order, provided by Marion Burkimsher.

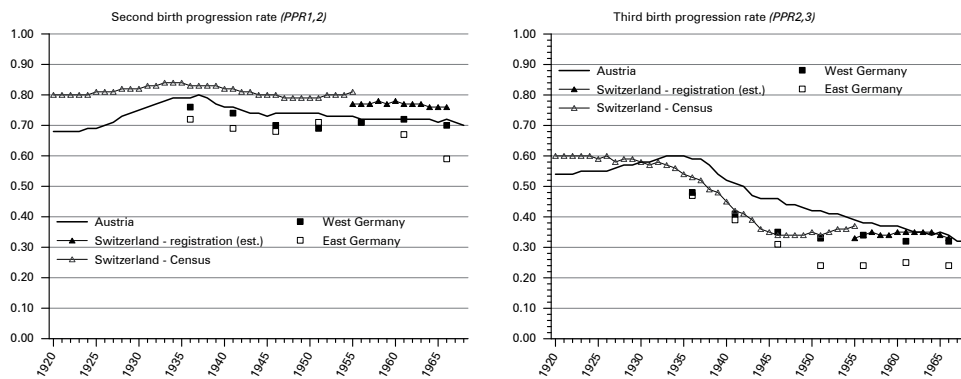
* This online Appendix contains supplementary materials for the article: DOI 10.4232/10.CPoS-2011-11en, URL: <http://www.comparativepopulationstudies.de/index.php/CPoS/article/view/81/76>.

Tab. A2: Selected indicators of the timing of childbearing in 1970, 1990 and 2009-10; Austria, Germany, and Switzerland

	Cumulated age-specific fertility rate at selected ages				Share in the total fertility (in %)			Mean age at childbearing
	<20	<25	25-34	35+	<20	30+	35+	
Austria								
1970	0.29	1.07	0.96	0.26	12.8	28.0	11.4	26.7
1990	0.10	0.53	0.80	0.12	6.9	28.2	8.4	27.2
2010	0.05	0.29	0.89	0.26	3.5	49.0	17.9	29.8
East Germany								
1970	0.30	1.22	0.83	0.15	13.8	19.8	6.7	25.4
1990	0.15	0.85	0.61	0.05	10.1	13.8	3.4	25.0
2010	0.08	0.32	0.92	0.22	5.6	45.7	15.2	29.3
West Germany								
1970	0.25	0.93	0.89	0.21	12.3	27.0	10.3	26.6
1990	0.08	0.38	0.93	0.14	5.2	35.4	9.8	27.6
2010	0.04	0.23	0.87	0.29	2.8	54.9	20.9	30.5
Switzerland								
1970	0.11	0.74	1.12	0.25	5.3	31.7	11.7	27.8
1990	0.03	0.32	1.09	0.17	2.1	39.6	10.5	28.9
2009	0.02	0.19	0.95	0.35	1.4	60.0	23.7	31.2
Changes in cumulated fertility rate (in percent) between 1990 and 2010 (2009)								
Austria	-51	-45	11	110				
East Germany	-46	-62	50	326				
West Germany	-48	-41	-7	104				
Switzerland	-38	-41	-13	114				

Source: Computations based on *Human Fertility Database* (2011); and *Eurostat* (2010, 2011).

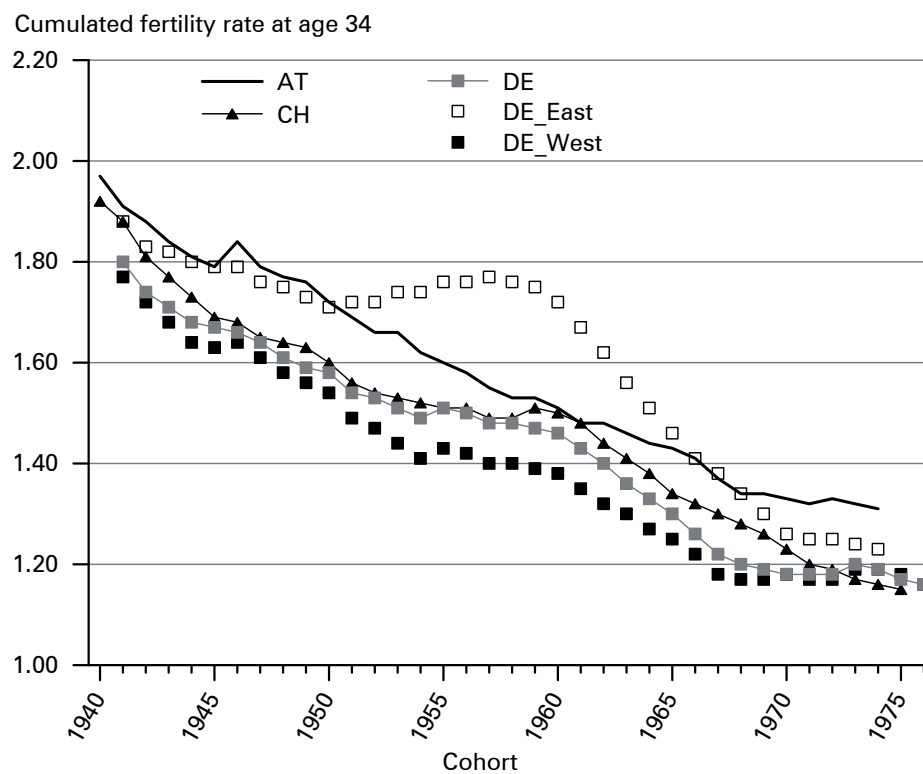
Fig. A1: Parity progression ratios to the second and third birth, women born 1920-1968



Notes: Data for Austria are based on the 1991 Census data (cohorts 1900-1940), 2001 Census data (cohorts 1940-1955) and on a combination of the 2001 Census data with the vital statistics data for the period 2001-2008 (cohorts 1956-1968). Data for Germany are based on the 2008 *Mikrozensus* survey and pertain to 5-year cohort groups. Data for Switzerland for the cohorts 1910-1955 are based on the 2000 Census (computations excluding women with unknown number of children); additional series for the cohorts 1955-1965 is based on time series of period fertility data by birth order, estimated by Marion Burkimsher.

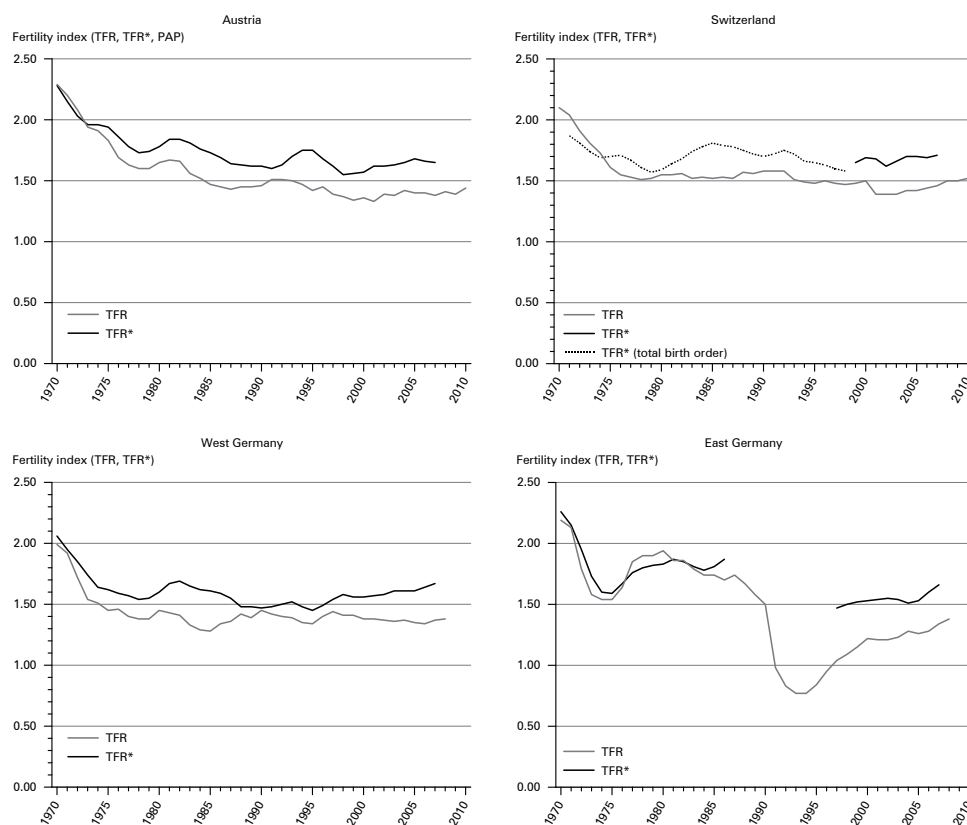
Source: Data and computations based on *Dorbritz/Schwarz* (1996), *Prskawetz et al.* (2008), *Statistisches Bundesamt* (2009), *Statistics Austria* (2005), *Human Fertility Database* (2011), and estimates of cohort fertility rates in Switzerland by birth order, provided by Marion Burkimsher.

Fig. A2: Cumulated cohort fertility rate reached at age 34, cohorts 1940-1976



Source: *Human Fertility Database* (2011).

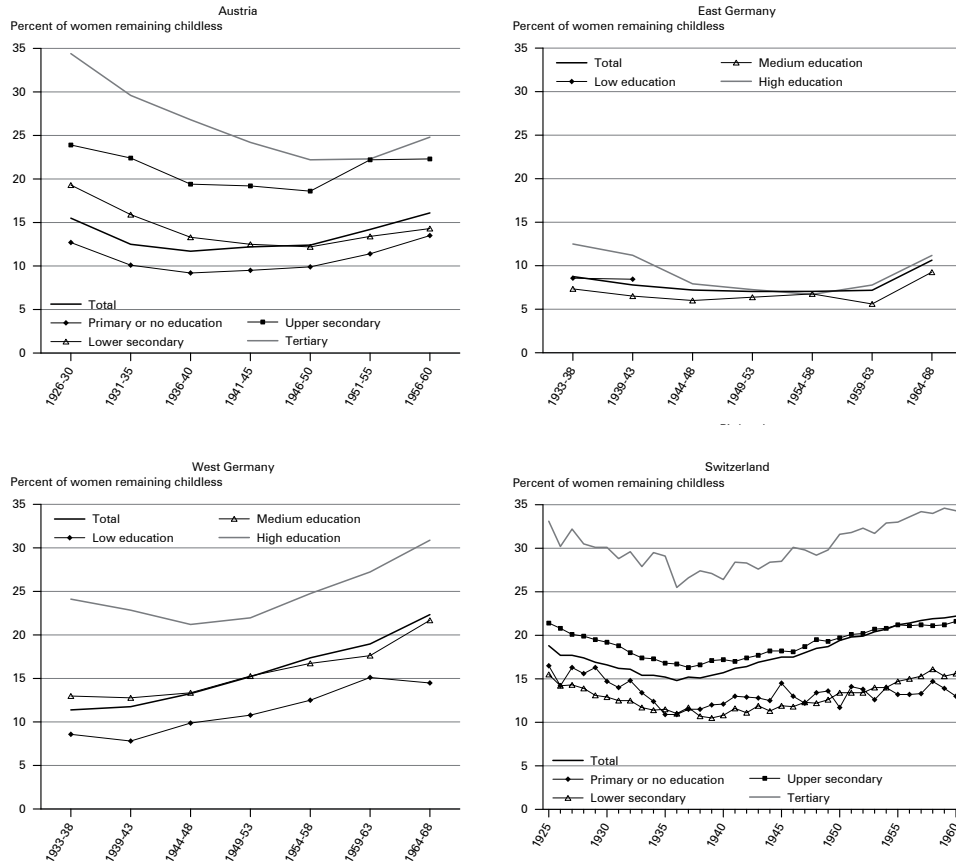
Fig. A3: Conventional (TFR) and tempo-adjusted (TFR*) period total fertility rates and period average parity (PAP) in Austria, Germany and Switzerland (1970-2008)



Notes: Tempo-adjusted TFR* has been computed only for birth orders 1, 2, and 3, and combined with the ordinary TFR for birth orders 4+. This omission has almost no effect on the resulting values of the TFR*. For Switzerland, computations prior to 1999 are based on total birth orders combined instead of order-specific data. The TFR* data are smoothed using 3-year moving averages to reduce random fluctuations. German order-specific data are based on *Kreyenfeld et al's* (2010) computations based on perinatal births statistics (2002-2006 data). Data for West Germany up to 2000 were computed by *Luy/Pötzsch* (2010) from *Kreyenfeld's* (2002) and *Birg et al's* (1990) estimates based on survey data.

Source: Computations based on the *Human Fertility Database* (2011); *Luy/Pötzsch* (2010); *Kreyenfeld et al.* (2010). Data for Austria in 1970-1984 were estimated by Anna Šťastná (RILSA, Prague) and Tomáš Sobotka on the basis of unpublished retrospective records collected in the 1981 Census and provided by Statistics Austria.

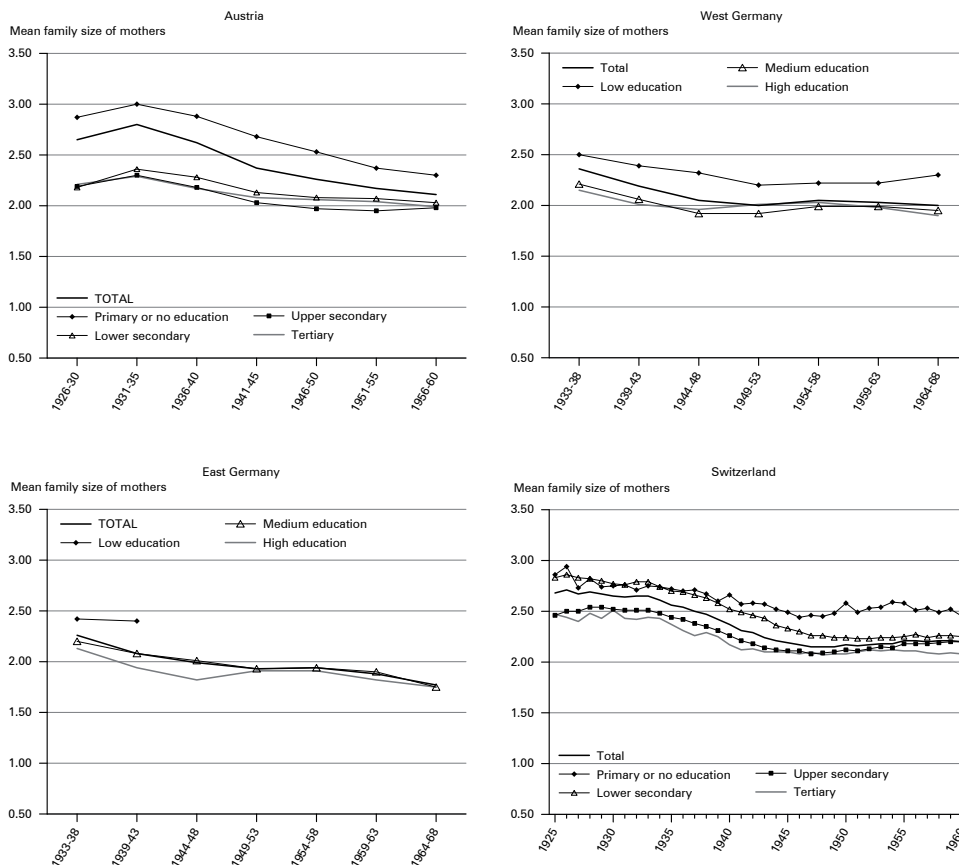
Fig. A4: Childlessness by level of education in Austria, Germany, and Switzerland, women born in the 1920s-1960s (in %)



Notes: Computations for Switzerland exclude women with unknown number of children. Definitions of educational categories in each country are available in online Appendix 3.

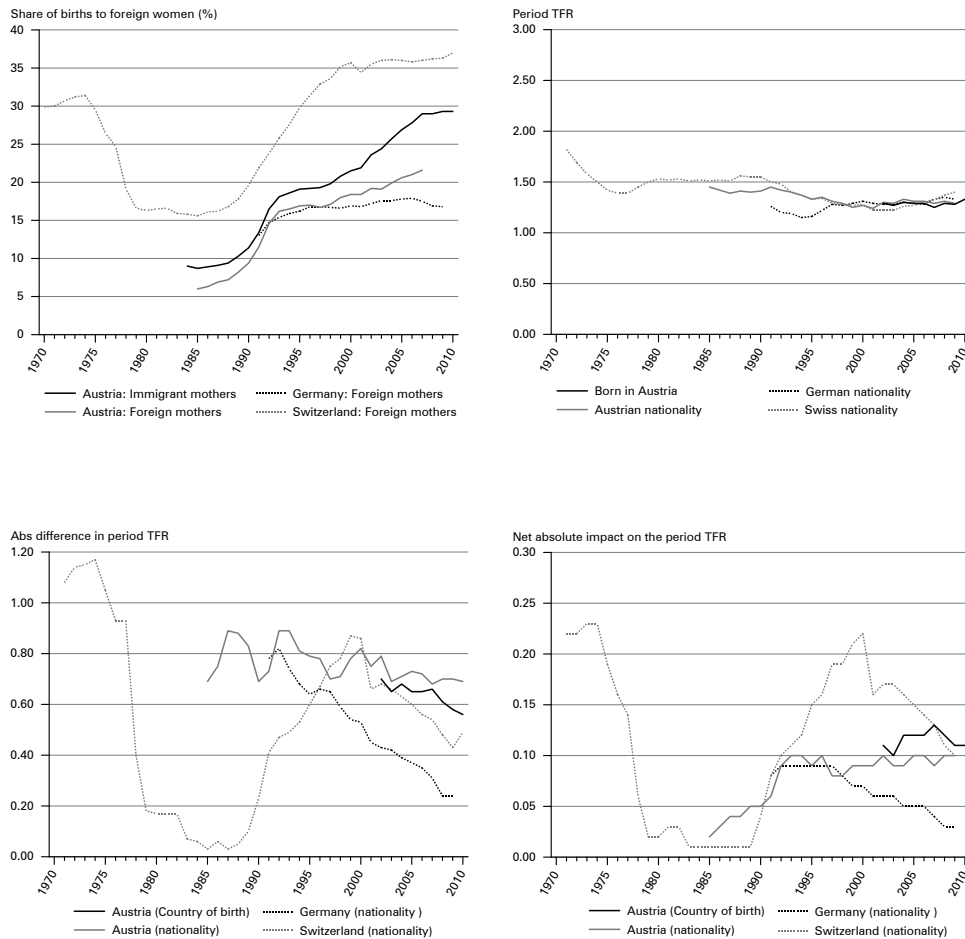
Source: Austria: Population Census 2001 (*Statistics Austria* 2005); Switzerland: Population Census 2000 (based on data and computations provided by Marion Burkimsher). Germany: 2008 *Mikrozensus* survey (*Statistisches Bundesamt* 2009).

Fig. A5: Mean number of children per mother by level of education in Austria, Germany, and Switzerland, women born in the 1920s-1960s



Notes: Computations for Switzerland exclude women with unknown number of children. Definitions of educational categories in each country are available in online Appendix 3. Source: Own computations based on the sources listed below the Figure A4.

Fig. A6: Selected characteristics of births and fertility rates among foreign, immigrant, and „native“ women in Austria, Germany, and Switzerland, 1970-2010



Notes: Data for Germany in the period up to 1990 refer to Western Germany and West Berlin. Note that TFR data among foreign women in Switzerland fluctuate considerably; these fluctuations have been partly caused by changes in the births statistics for foreigners, especially inclusion or exclusion of data for asylum seekers.

Source: Austria: *Geburtenbarometer* (2011); *Zeman et al.* (2011); *Kytir* (2006), and data provided by Statistics Austria. Germany: *Statistisches Bundesamt* (2011); *Schmid/Kohls* (2009); *Mammei/Schwarz* (2002: 227, Table 6.3). Switzerland: *SFSO* (2011) and *Wanner* (2002).

Online Appendix 2: Austrian, German, and Swiss fertility and population trends within Europe

To complement the review of fertility trends in Austria, Germany, and Switzerland, Table A3 below summarises major population and fertility characteristics in these three countries as compared with selected other countries in Europe, and with Japan, United States, the European Union and the whole of Europe.

Germany stands out with both slow population growth since 1960 and the most aged population, which with a median age of 44.3 in 2010 is considerably older than in other countries of Europe, including Austria and Switzerland, but similar to Japan. Eastern Germany has seen its population shrinking due to emigration and low fertility for most of the post-war era. Fertility in all the three countries is lower than in the whole European Union whatever measure is used, be it an ordinary TFR for 2010, tempo-adjusted TFR around 2006 or the completed TFR among women born in 1968, but this contrast is strongest for the completed TFR among German women born in 1968, which constitutes an undistorted indicator of a low fertility level; the estimated CTFR for the EU is 1.77, i.e., by 0.28 above that in Germany. Also in this regard, Germany actually comes very close to Japan with a CTFR of 1.51. All the three countries analysed here have elevated levels of childlessness, surpassing most other developed countries. However, childlessness in Austria, estimated at 17 % for that cohort can be compared with the level of 18 % reached in the Netherlands and England and Wales. One feature which the three German-speaking countries share with their Western and Northern European neighbours, but also with Japan, is a late timing of first birth. Switzerland ranks highest in Europe, with the mean age of mothers at first birth close to 30 and the figure for the whole region has reached 29 in 2010. Following some of its 'heritage' of early childbearing during the state-socialist period, women in Eastern Germany still have a younger first birth pattern than their Western German counterparts.

Tab. A3: Major population and fertility characteristics in Austria, Germany, Switzerland, and selected other countries and regions (around 2010 or most recent data)

	Popu- lation in 2011, million	% of European population	Pop. growth 1960-2011 (1960 = 100)	Population median age, 2010	Period TFR (2010)	Tempo- adjusted TFR (2006)	Cohort CTFR (1968)	Child- lessness (cohort 1965)	Mean age at first birth (2010)
Austria	8.4	1.1	120	41.8	1.44	1.66	1.62	17.1	28.2
Switzerland	7.9	1.1	149	41.9	1.54	1.60	1.66	21	29.9
Germany	81.8	11.1	113	44.3	1.39	1.62	1.49	20.8	28.9
<i>East Germany</i>	16.5 ¹	2.2	84	..	1.46	1.57	1.53	9.3	27.3 ²
<i>West Germany</i>	65.5 ¹	8.9	123	..	1.39	1.63	1.48	22.4	28.9 ²
<i>Total</i>	<i>98.0</i>	<i>13.2</i>	<i>115</i>	<i>43.9</i>	<i>1.41</i>	<i>1.62</i>	<i>1.51</i>	<i>20.5</i>	<i>29.0</i>
France	63.1	8.5	139	40.1	2.00	2.13	2.01		27.8 ¹
Italy	60.6	8.2	121	43.3	1.40	1.47	1.52		..
The Netherlands	16.7	2.3	146	40.8	1.80	1.79	1.78	18.2	29.2
Poland	38.2	5.2	130	38.2	1.38	1.50	1.90		26.4
Russia	141.9	19.2	119	38.1	1.54	1.52	1.57	8	24.4 ¹
Sweden	9.4	1.3	126	40.9	1.98	1.94	1.99	12.3	28.9
United Kingdom	62.4	8.4	120	39.9	1.98	2.07	1.90	18	27.5 ¹
<i>European Union</i>	<i>497.8</i>	<i>67.7</i>	<i>124</i>	<i>..</i>	<i>1.59</i>	<i>1.75</i>	<i>1.77</i>		<i>27.5¹</i>
Europe	735.6	100.0	121	40.2	1.56	1.67	1.71		27.1 ¹
Japan	127.7	..	135	44.7	1.37	1.44	1.51	14	28.9 ¹
United States	305.5	..	169	36.6	2.09	2.08	2.13	14.0	25.6 ¹

Notes:

¹ Data for 2008; ² Data for 2009

Tempo-adjusted TFR* has been computed only for birth orders 1, 2, and 3, and combined with the ordinary TFR for birth orders 4+. This omission has almost no effect on the resulting values of the TFR*. German order-specific data are based on *Kreyenfeld et al's* (2010) computations based on perinatal births statistics.

Childlessness in Switzerland: estimate based on time series of period fertility data by birth order, reconstructed by Marion Burkimsher. German childlessness data are based on the 2008 Microcensus survey and pertain to a 5-year cohort of 1964-68. Mean age at first birth for Europe and European Union: data partly estimated as this statistics is not available for all countries.

Source: *Human Fertility Database* (2010, 2011); *OECD* (different datasets); *VID-IIASA* (2010); *Eurostat* (2010, 2011); *Kreyenfeld et al.* (2010); *Human Mortality Database* (2010); *Population Reference Bureau* (2011).

Online Appendix 3: Education categories used in analysis in Section 6 (Partly in German)

Austria

Categories used are standard categories tabulated with the vital statistics and population census data

Primary education or no completed education (*Pflichtschule*)

Allgemein bildende Pflichtschule

Lower secondary education: Apprenticeship, practical training (*Lehrabschluss* and *berufsbildende mittlere Schule*)

Lehrlingsausbildung (Apprenticeship)

Berufsbildende mittlere Schule

Upper secondary education: high school, vocational high school (*Allgemeine höhere Schule* and *berufsbildende höhere Schule*)

Allgemein bildende höhere Schule; (Gymnasium, General Grammar School)

Berufsbildende höhere Schule (einschl. Kolleg)

Tertiary education: University and university of applied science (*Universität, berufs- und lehrerbildende Akademie*)

Berufs- und lehrerbildende Akademie

Universität, (Fach-)Hochschule

More details on education system in Austria:

- Austrian Agency for International Cooperation in Education and Research: URL: www.oead.at/bildungssystem
- ibw: Institute for Research on Qualifications and Training of the Austrian Economy: URL: www.bic.at/downloads/en/brftipps/0_1_bildungssystem_en.pdf
- wikipedia: URL: en.wikipedia.org/wiki/Education_in_Austria

Germany

Three categories used were tabulated with the results of the German microcensus (*Mikrozensus*) data on family and fertility (*Statistisches Bundesamt* 2009; URL: http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Presse/pk/2009/Kinderlosigkeit/Kinderlosigkeit__Ueb,templateId=renderPrint.psml. December 2011).

Low education / Niedrige Bildung

ISCED 1:

- ohne allgemeinen Schulabschluss und ohne beruflichen Abschluss

ISCED 2:

- Haupt-(Volks-)schul-/Realschulabschluss/Abschluss der Polytechnischen Oberschule; ohne beruflichen Abschluss
- Haupt-(Volks-)schul-/Realschulabschluss/Abschluss der Polytechnischen Oberschule; Anlernausbildung, Berufliches Praktikum
- Haupt-(Volks-)schul-/Realschulabschluss/Abschluss der Polytechnischen Oberschule; Berufsvorbereitungsjahr
- Ohne Hauptschulabschluss; Berufsvorbereitungsjahr

Medium education / Mittlere Bildung

ISCED 3A:

- Fachhochschul-/Hochschulreife ohne beruflichen Abschluss

ISCED 3B:

- Abschluss einer Lehrausbildung
- Berufsqualifizierender Abschluss an Berufsfachschulen/Kollegschulen
- Abschluss einer einjährigen Schule des Gesundheitswesens

ISCED 4:

- Fachhochschulreife/Hochschulreife und Abschluss einer Lehrausbildung
- Fachhochschulreife/Hochschulreife und berufsqualifizierender Abschluss an Berufsfachschulen/Kollegschulen bzw. Abschluss einer einjährigen Schule des Gesundheitswesens

High education / Hohe Bildung

ISCED 5A:

- Fachhochschulabschluss (auch Ingenieurschulabschluss, Bachelor-/ Masterabschluss an Fachhochschulen, ohne Abschluss einer Verwaltungsfachhochschule)
- Hochschulabschluss (Diplom (Universität) und entsprechende Abschlussprüfungen, Künstlerischer Abschluss, Bachelor-/Masterabschluss an Universitäten, Lehramtsprüfung)

ISCED 5B:

- Meister-/Technikerausbildung oder gleichwertiger Fachschulabschluss, Abschluss einer 2- oder 3-jährigen Schule des Gesundheitswesens, Abschluss einer Fachakademie oder einer Berufsakademie
- Abschluss einer Verwaltungsfachhochschule
- Abschluss der Fachschule der ehemaligen DDR

ISCED 6:

- Promotion

More details on education system in Germany:

- wikipedia: URL: en.wikipedia.org/wiki/Education_in_Germany

Switzerland

Four categories are used, following the standard classification of data from the population census in 2000.

See pp. 77-83 of the following publication for more details on Swiss education system, as classified by the Swiss Federal Statistical Office:

Bildungs mosaik Schweiz. Bildungsindikatoren 2007. Neuchâtel, 2007: Bundesamt für Statistik

Primary or no completed education (Primarstufe, ISCED 1)

Lower Secondary education (Secundarstufe I, ISCED 2)

- Obligatorische Schule

Upper Secondary education (Secundarstufe II, ISCED 3-4)

A Allgemein bildende Schulen

- Maturitätsschulen
- Fachmittelschulen FMS (formerly Diplommittelschule oder berufsvorbereitende Schule)
- Unterrichtsberufe

B Berufsbildung

- Berufsmaturität

Tertiary education (ISCED 5-6)

- Höhere Berufsbildung
- Fachhochschulen
- Universitäre Hochschulen

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