Appendices

Appendix A: Mortality Differentials Across Germany's Federal States

Table A.1 Data availability of mid-year population and death counts by single-year age groups with highest age group 90+ by federal state

Federal state	Population	Death counts
Schleswig-Holstein	1980–2006	1980–2006
Hamburg	1980–2006	1980–2006
Lower Saxony	1980–2006	1980–2006
Bremen	1980–2006	1980–2006
North Rhine-Westphalia	1980–2006	1980–2006
Hesse	1980–2006	1980–2006
Rhineland-Palatinate	1980–2006	1980–2006
Baden-Württemberg	1980–2006	1980–2006
Bavaria	1980–2006	1980–2006
Saarland	1980–2006	1980–2006
Berlin	1990–2006	1990–2006
Berlin West	1980–2004	1980–2004
Berlin East	1980–2004	1980–2004
Brandenburg	1982–2006	1980–2006
Mecklenburg-Western Pomerania	1982–2006	1980–2006
Saxony	1990–2006	1980–2006
Saxony-Anhalt	1991–2006	1990–2006
Thuringia	1982–2006	1980–2006

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Table A.2 ICD-9 and ICD-10 codes of leading causes of death

ICD-10 chapter	Cause of death	ICD-10	ICD-9
I	Infectious and parasitic diseases	A00–B99	001–139
II	Neoplasms	C00–D48	140–239
	C. of stomach	C16	151
	C. of colon/rectum/anus	C18–C21	153–154
	C. of pancreas	C25	157
	C. of lung/larynx/bronchus/ trachea	C32–C34	161–162
	C. of breast	C50	174–175
	C. of female genital organs	C51–C58	180–184
	C. of prostate	C61	185
	C. of lymph./hematopoietic tissue	C81–C96	200–206
IV	Endocrine, nutritional and metabolic diseases	E00–E90	240–278
	Diabetes mellitus	E10–E14	250
V	Mental and behavioral disorders	F00–F99	290–319
VI	Diseases of the nervous system and the sense organs	G00–H95	320–389
IX	Diseases of the circulatory system	I00–I99	390–459
	Heart diseases	I20–I52	410–429
	Ischemic heart diseases	I20–I25	410–414
	Cerebrovascular diseases	I60–I69	430–438
X	Diseases of the respiratory system	J00–J99	460–519
	Pneumonia	J12–J18	480–486
	Chronic lower respiratory diseases	J40–J47	490–494, 496
XI	Diseases of the digestive system	K00–K93	520–579
XIV	Diseases of the genitourinary system	N00–N99	580–629
XVIII	Symptoms, signs, abnormal findings, ill-defined causes	R00–R99	780–799
XX	External causes of injury and poisoning	V01–Y89	E800–E999
	Transport accidents	V01–V99, Y85	E800–E848, E929
	Suicide and intentional self-harm	X60–X84	E950–E959
	Alcohol-related causes		
	Alcohol abuse (incl. alcoholic psychosis)	F10	291, 303
	Chronic liver disease	K70, K73–K74	571
	Accidental poisoning by alcohol	X45	E860
XXI	Other diseases	Rest (A00–Y99)	Rest (001–E999)

Source: European shortlist (European Communities 2003)

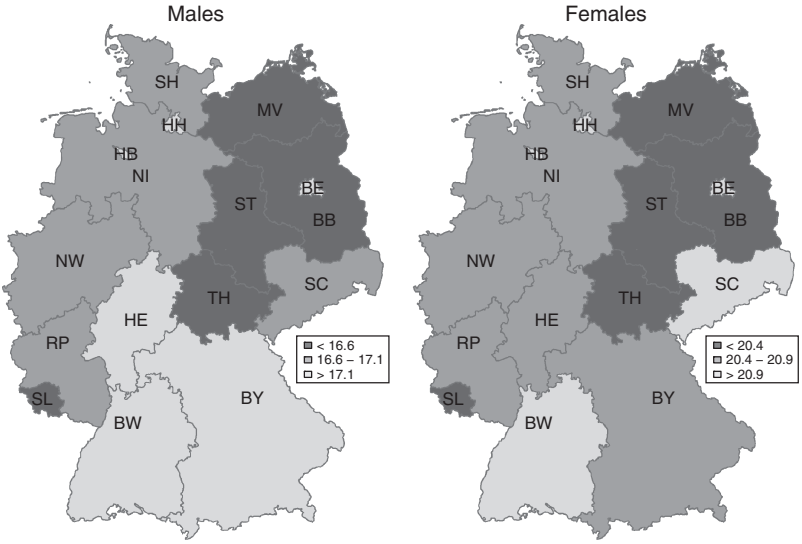

Fig. A.1 Life expectancy at age 65 by federal state; 2004–2006. *SH* Schleswig-Holstein (e_{65} males 17.06 years, females 20.61), *HH* Hamburg (17.15, 21.11), *NI* Lower Saxony (16.96, 20.58), *HB* Bremen (17.20, 21.10), *NW* North Rhine-Westphalia (16.62, 20.41), *HE* Hesse (17.42, 20.89), *RP* Rhineland-Palatinate (16.96, 20.47), *BW* Baden-Württemberg (17.78, 21.41), *BY* Bavaria (17.17, 20.67), *SL* Saarland (16.25, 19.98), *BE* Berlin (17.12, 21.12), *BB* Brandenburg (16.24, 20.28), *MV* Mecklenburg-Western Pomerania (16.10, 20.38), *SN* Saxony (16.69, 20.98), *ST* Saxony-Anhalt (15.82, 20.09), *TH* Thuringia (16.08, 20.16) (Data source: Federal State Offices of Statistics, Germany)

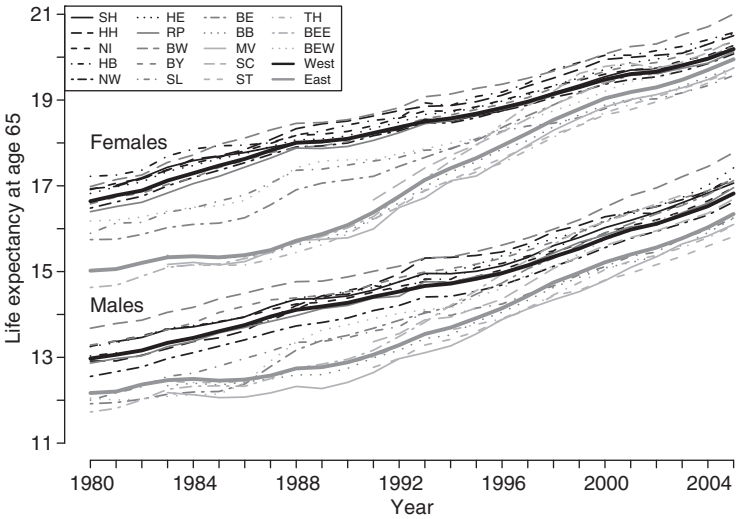

Fig. A.2 Life expectancy at age 65 by federal state; 1979–1981 to 2004–2006. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal states: State Offices of Statistics, Germany; Human Mortality Database 2008c)

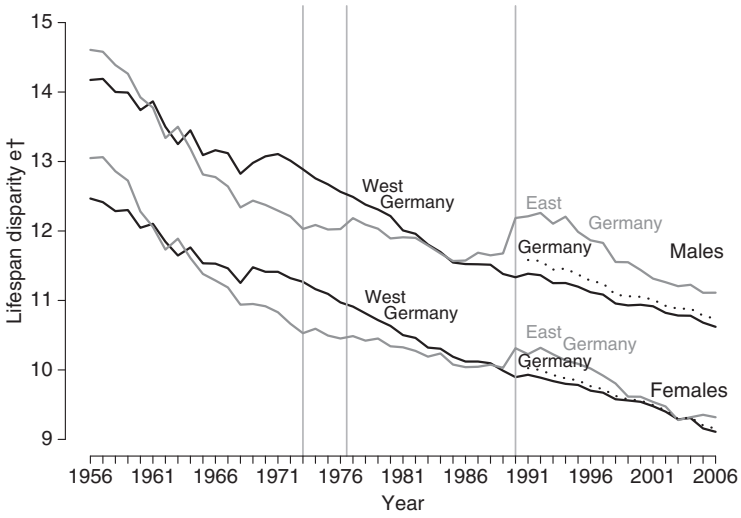

Fig. A.3 Lifespan disparity $e^{\dagger}$ in East and West Germany; 1956–2006. *Vertical lines* distinguish important time periods and indicate when East and West German life expectancies cross and 1990, the year of reunification. 1956–1972 (f) and 1956–1976 (m): life expectancy higher in East Germany; 1973–1990 (f) and 1977–1990 (m): life expectancy higher in West Germany and faster increases compared with East Germany; after 1990: life expectancy higher in West Germany but faster increases in East Germany (Data source: Human Mortality Database 2008c)

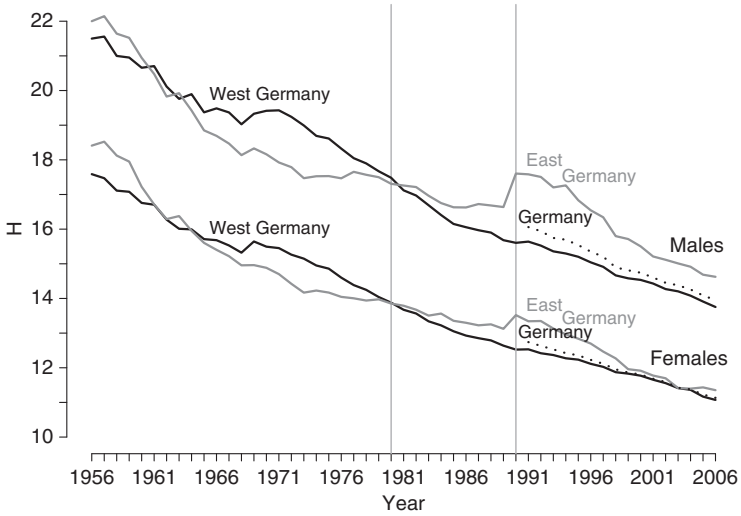

Fig. A.4 Lifespan disparity relative to life expectancy ($H=(e^{\dagger}/e_0)$*100) in East and West Germany; 1956–2006. *Vertical lines* distinguish important time periods and indicate when East and West German life expectancies cross in 1980 and 1990, the year of reunification (Data source: Human Mortality Database 2008c)

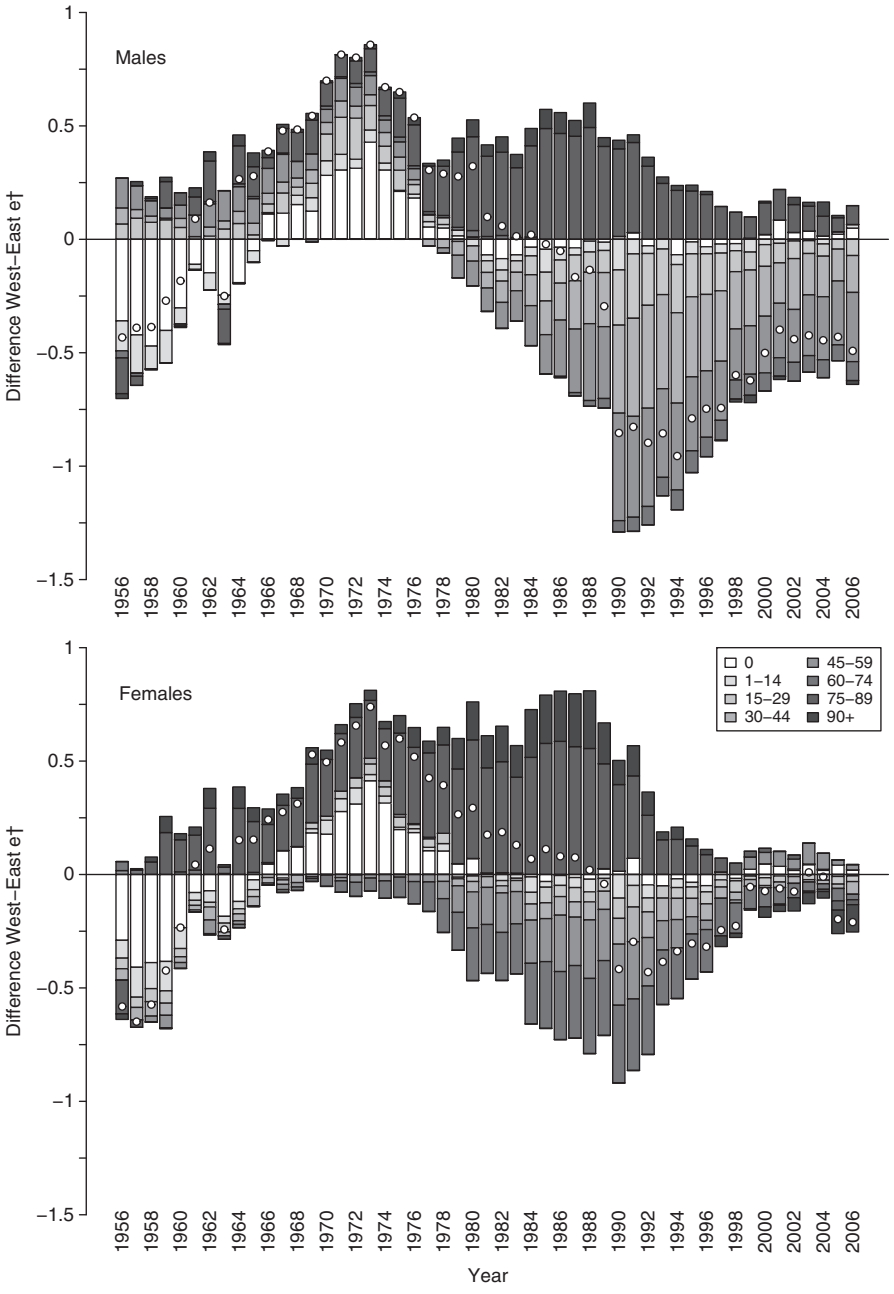

Fig. A.5 Contribution of age-specific mortality to differences in lifespan disparity $e^{\dagger}$ between West and East Germany; 1956–2006 (Data source: Human Mortality Database 2008c)

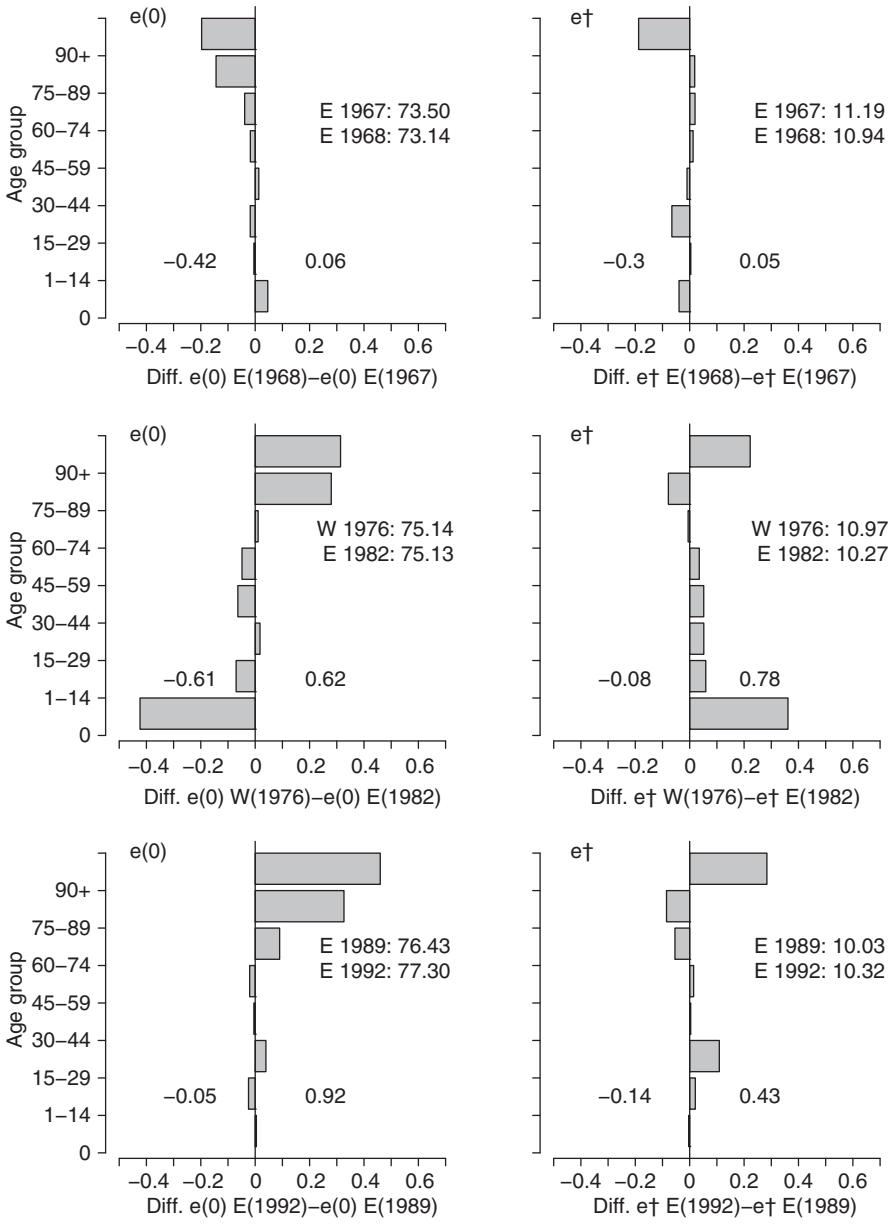

Fig. A.6 Contribution of age-specific mortality to differences in e_0 (*left panel*) and $e^{\dagger}$ (*right panel*) (in years), females: comparison 1967–1968 in East Germany (Period 2, *upper panel*); comparison West Germany 1976 and East Germany 1982 (Period 3, *middle panel*); comparison 1989 and 1992 in East Germany (Period 4, *lower panel*) (Data source: Human Mortality Database 2008c)

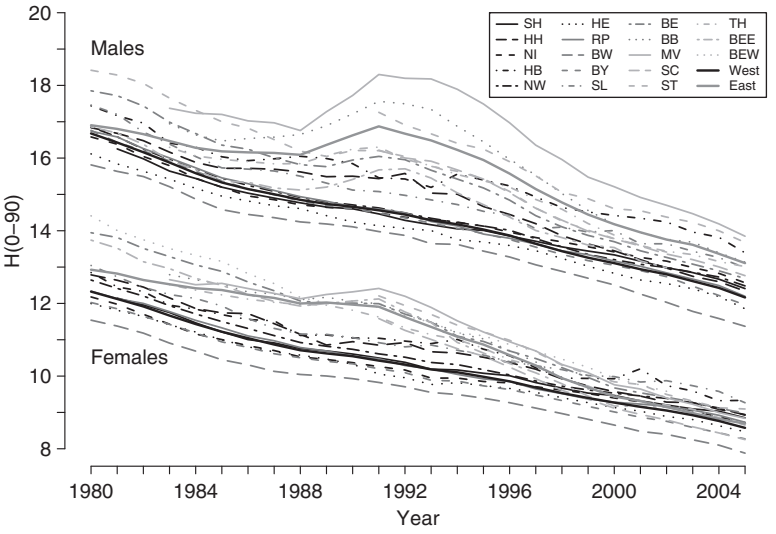

Fig. A.7 Lifespan disparity relative to life expectancy ($_{90}H_0 = (_{90}e_0^{\dagger}/_{90}e_0)$*100) by federal state; 1979–1981 to 2004–2006. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany; Human Mortality Database 2008c)

Table A.3 Constants in the Poisson models by cause-of-death group; 1991–2006

	Model 1	Model 2	Model 3a	Model 3b	Model 3c
	A+T	A+FS+T	A*FS+T	A*T+FS	A+T*FS
Males					
All causes	−7.44	−7.55	−7.54	−7.45	−7.56
Neoplasms	−10.22	−10.30	−10.27	−10.22	−10.29
CVD	−10.95	−11.11	−10.95	−11.16	−11.12
Respiratory	−11.28	−11.41	−11.21	−11.17	−11.26
External	−9.28	−9.29	−9.44	−9.14	−9.35
Alcohol	−15.02	−15.15	−14.52	−15.08	−15.21
Other	−7.87	−7.91	−7.98	−7.70	−7.97
Females					
All causes	−7.70	−7.78	−7.78	−7.67	−7.80
Neoplasms	−10.41	−10.46	−10.42	−10.34	−10.45
CVD	−11.11	−11.27	−11.16	−11.33	−11.29
Respiratory	−11.61	−11.64	−11.65	−11.33	−11.37
External	−9.65	−9.59	−9.79	−9.48	−9.72
Alcohol	−14.86	−14.97	−14.87	−14.41	−15.05
Other	−8.09	−8.03	−8.16	−7.82	−8.10

Data source: Federal State Offices of Statistics, Germany
A Age group, *T* Time period, *FS* Federal state

Table A.4 Relative mortality improvement in percent by cause-of-death group; 1991–1994 to 2003–2006 (From Model 3b: A + FS*T)

	Age	All	Neoplasms	CVD	Respiratory	External	Alcohol	Other
Males								
	0–14	38.2	27.1	25.9	53.2	53.8	21.2	36.7
	15–29	39.5	33.5	41.1	40.4	40.4	59.3	38.6
	30–44	33.0	27.5	41.3	31.6	35.2	42.9	16.3
	45–59	27.5	26.2	39.5	28.1	26.6	27.1	0.6
	60–74	26.6	17.4	40.0	29.1	19.3	22.9	−0.03
	75–84	29.7	19.5	40.2	26.7	28.6	29.1	4.4
	85+	17.7	18.7	21.5	14.7	21.6	31.8	−14.4
Females								
Age	0–14	36.2	31.8	15.0	38.7	53.6	na	35.0
	15–29	34.6	38.0	34.3	43.7	37.7	62.5	24.8
	30–44	28.3	26.1	29.1	32.0	33.8	48.4	14.8
	45–59	21.1	18.9	33.6	4.9	32.3	25.8	5.4
	60–74	30.4	18.5	46.8	16.9	32.2	24.5	20.2
	75–84	26.1	16.5	37.3	4.7	33.9	26.6	1.7
	85+	5.8	13.1	9.8	−11.7	30.3	27.7	−27.7

Data source: Federal State Offices of Statistics, Germany

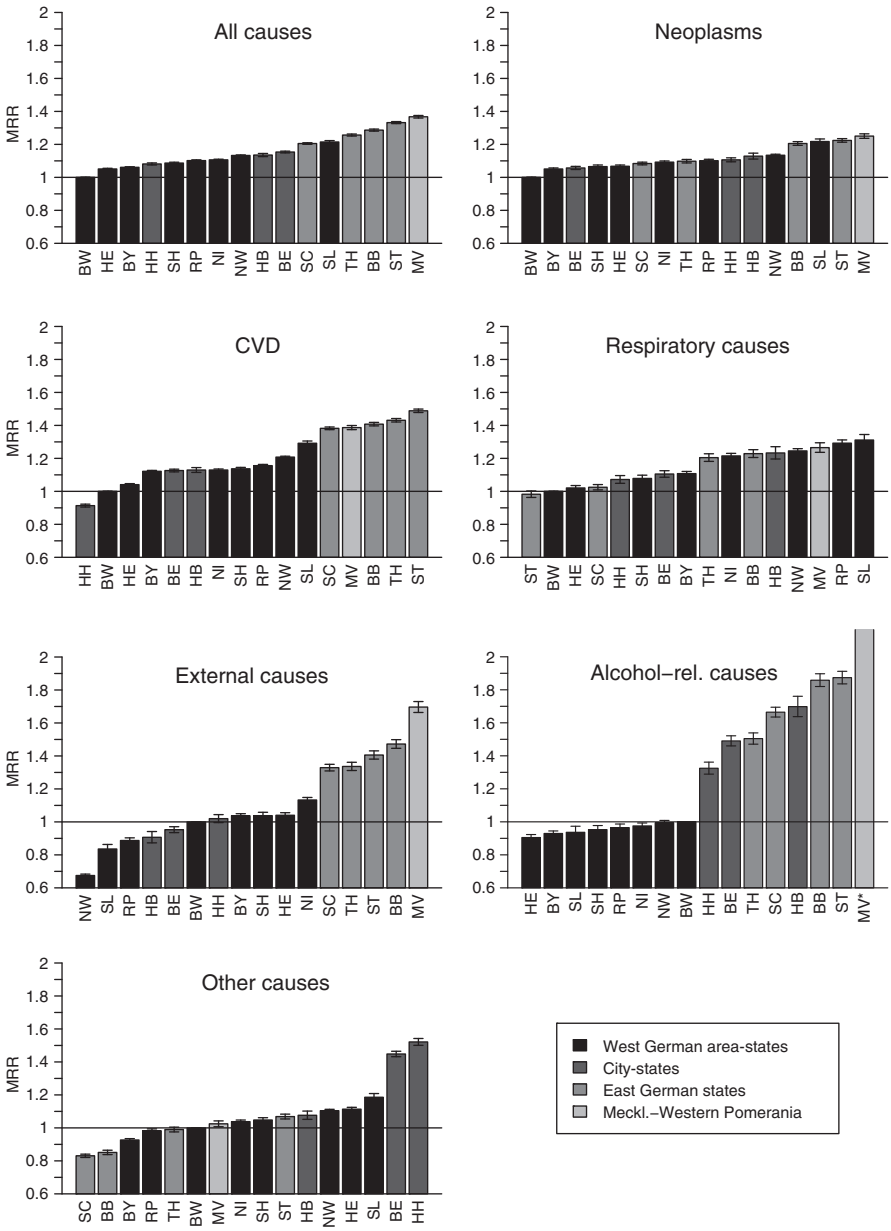

Fig. A.8 MRR of cause-specific mortality by federal state, males; 1991–2006 (space effect in Model 2: A + FS + T; reference state: Baden-Württemberg). Colored by clusters; * value for MV: 2.60 (2.55–2.66). *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany)

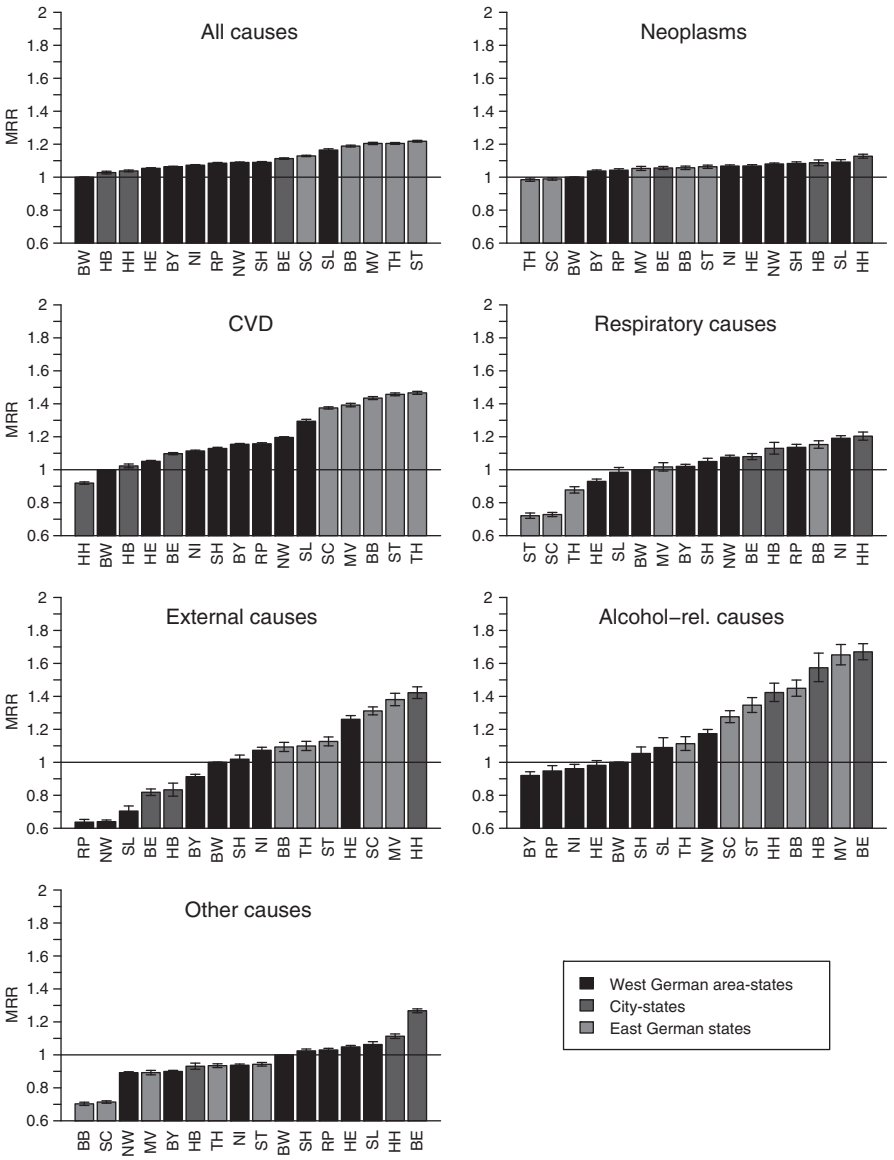

Fig. A.9 MRR of cause-specific mortality by federal state, females; 1991–2006 (space effect in Model 2: A + FS + T; reference state: Baden-Württemberg). Colored by clusters. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany)

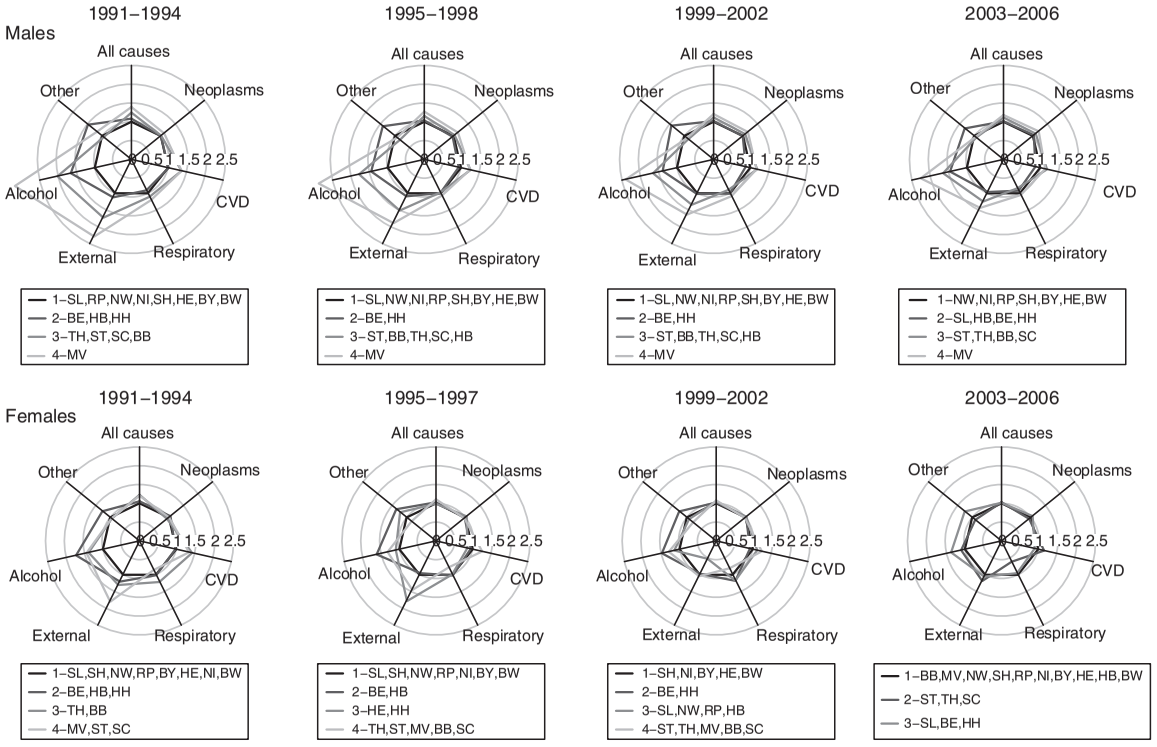

Fig. A.10 MRR of cause-specific mortality by federal state clusters by time period; 1991–2006 (model with A + T*Cluster). *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany)

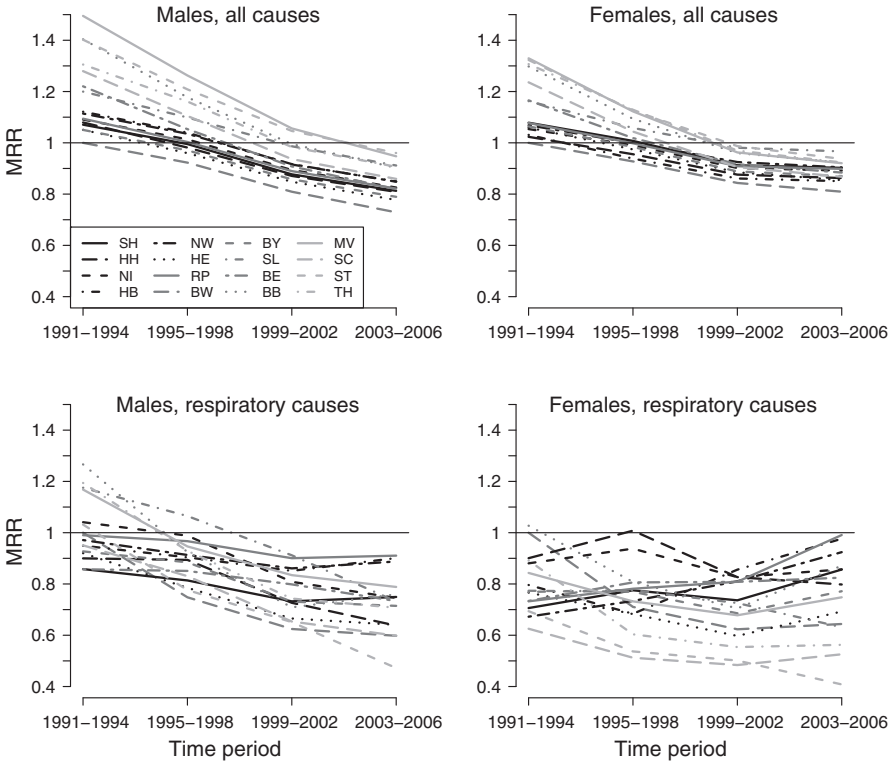

Fig. A.11 MRR of all-cause mortality and respiratory mortality by time period and by federal state (reference time period 1991–1994, reference state Baden-Württemberg; Model 3c: A + FS*T). *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany)

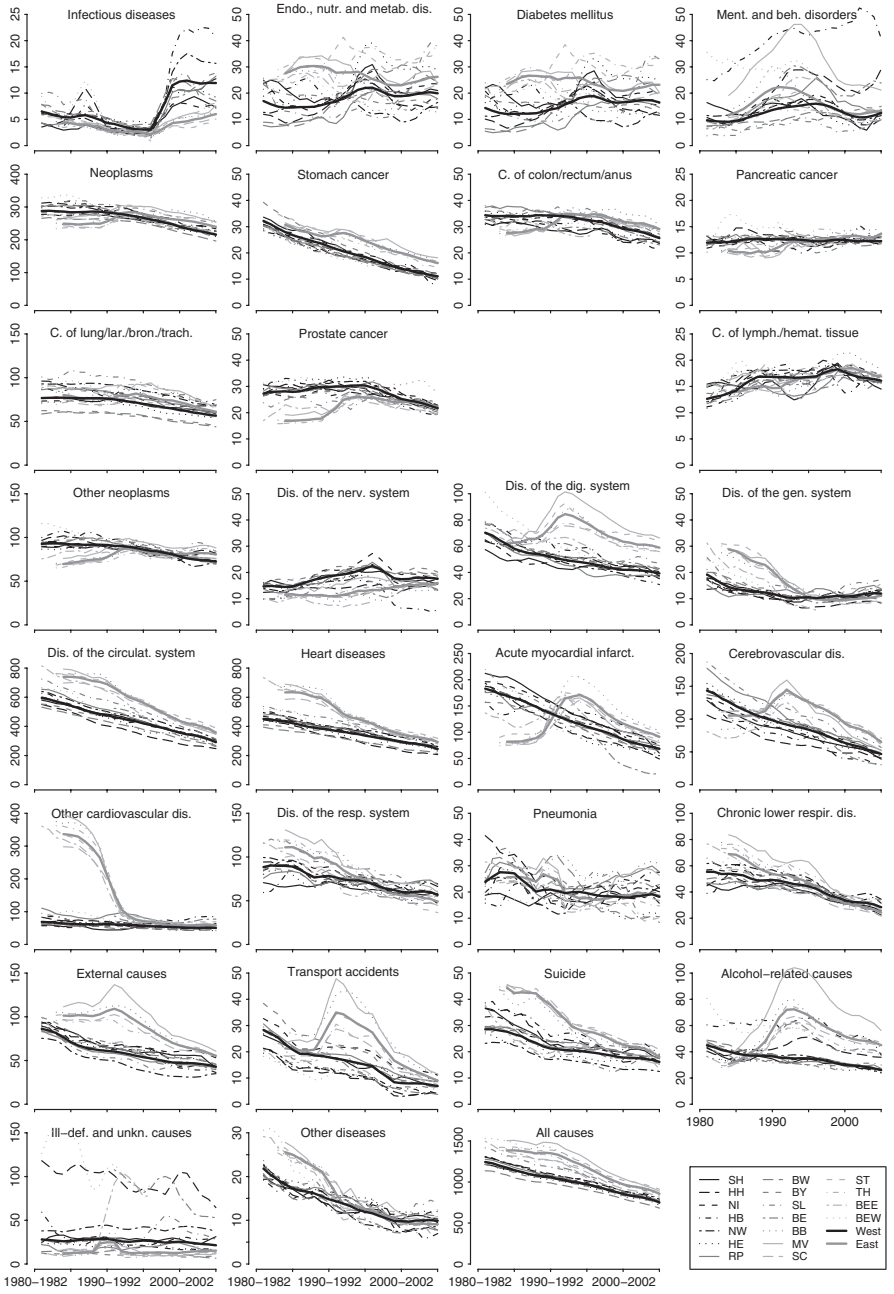

Fig. A.12 SDR by leading causes of death by federal state, males; 1980–1982 to 2004–2006. Berlin not included in West or East German average; directly standardized death rates calculated using the old European standard population (European Communities 2003). *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany)

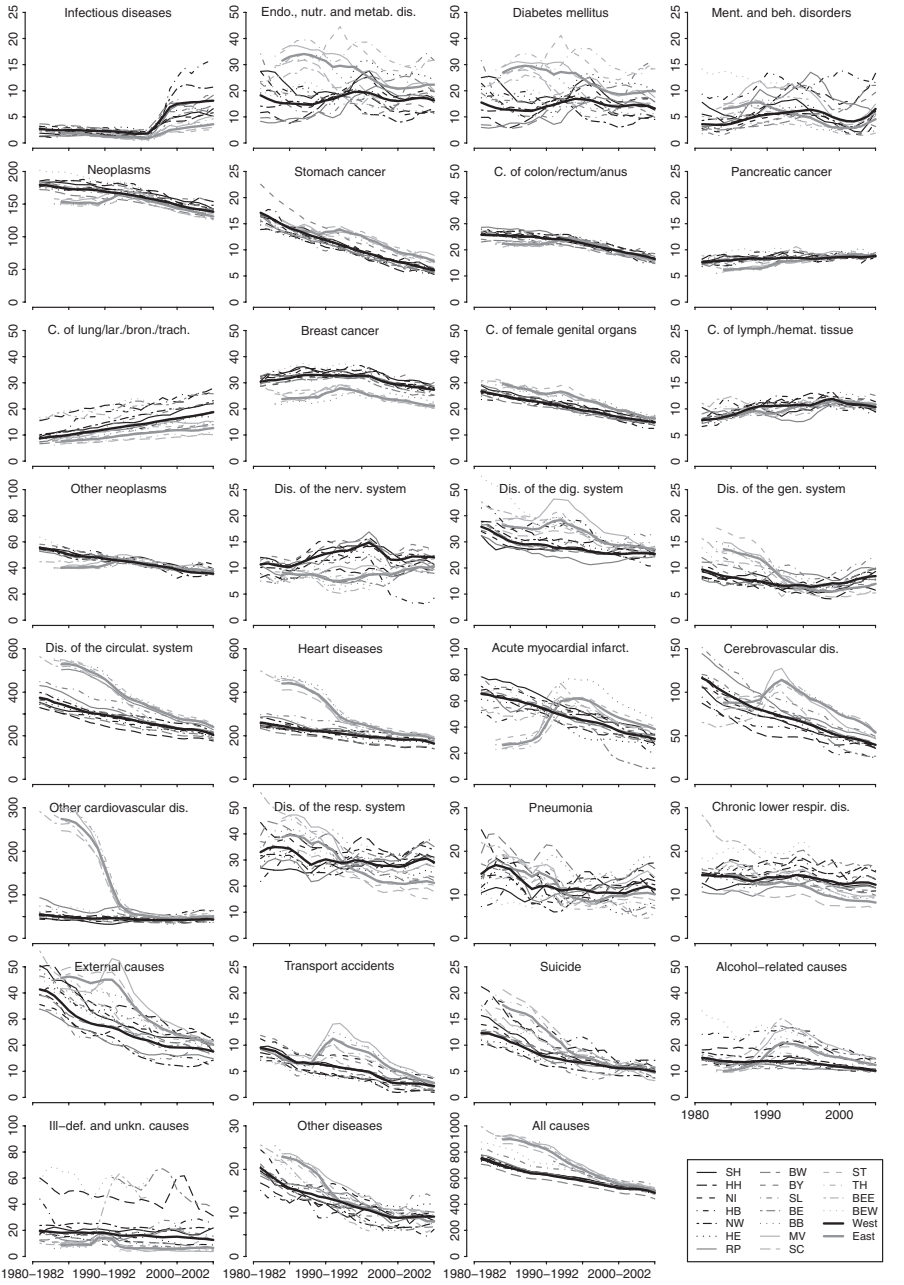

Fig. A.13 SDR by leading causes of death by federal state, females; 1980–1982 to 2004–2006. Berlin not included in West or East German average; directly standardized death rates calculated using the old European standard population (European Communities 2003). *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany)

Appendix B: Mortality Differentials Across Germany's Districts

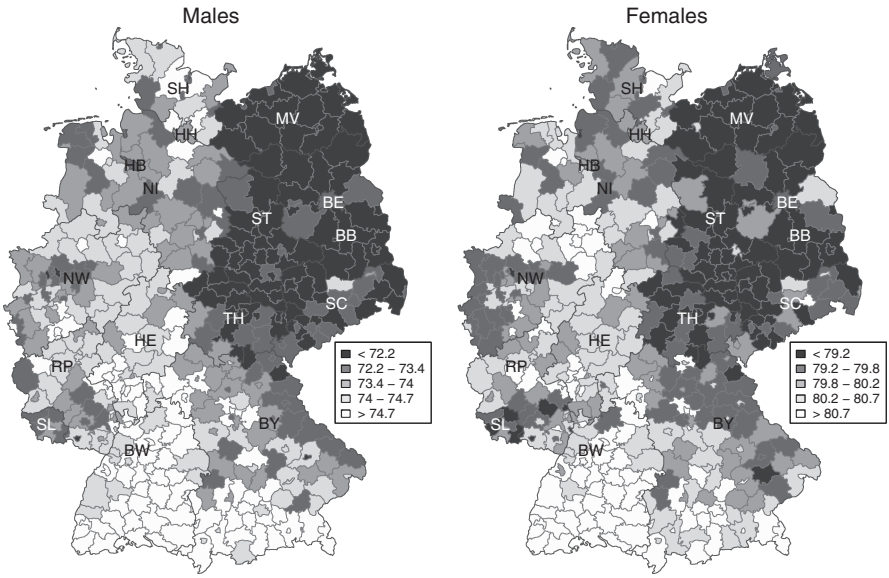

Fig. B.1 Life expectancy by district; 1995–1997. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

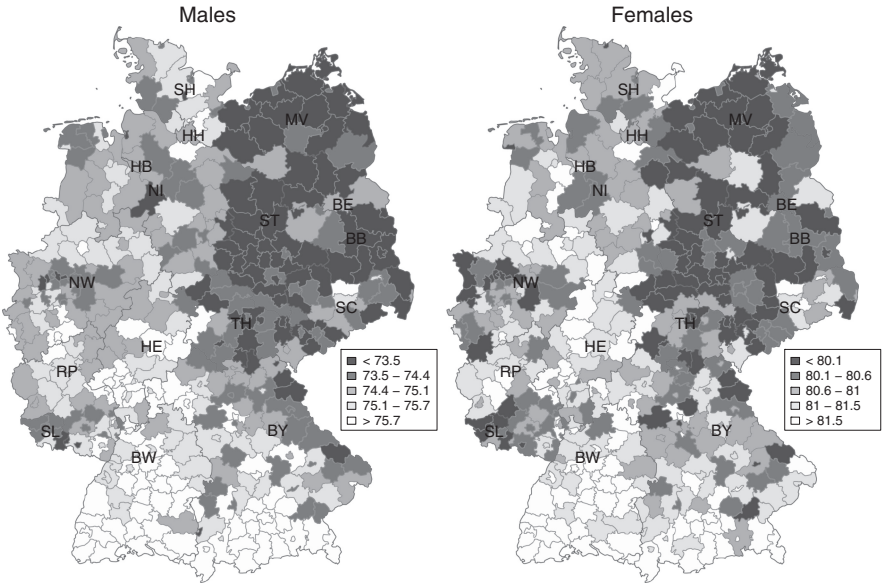

Fig. B.2 Life expectancy by district; 1998–2000. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Table B.1 Dispersion of life expectancy across districts: standard deviation (SD) and centiles; 1995–2006

	Males					Females				
	SD	5%	25%	75%	95%	SD	5%	25%	75%	95%
1995	1.72	69.7	72.1	74.3	75.4	1.09	77.7	79.1	80.4	81.4
1996	1.60	70.5	72.5	74.6	75.7	1.06	77.9	79.2	80.6	81.4
1997	1.56	71.2	73.0	75.0	76.1	1.00	78.5	79.6	81.0	81.8
1998	1.41	71.7	73.6	75.3	76.5	0.98	78.9	79.9	81.2	82.1
1999	1.36	72.3	73.8	75.6	76.8	0.88	79.4	80.2	81.4	82.2
2000	1.41	72.5	74.0	75.9	77.0	0.94	79.6	80.4	81.7	82.7
2001	1.35	73.0	74.5	76.4	77.4	0.89	79.9	80.7	82.0	82.9
2002	1.42	73.0	74.6	76.5	77.9	0.93	79.9	80.8	82.0	82.9
2003	1.41	73.3	74.7	76.6	77.9	0.87	80.1	80.9	82.0	82.8
2004	1.42	73.8	75.4	77.3	78.6	0.89	80.6	81.4	82.6	83.5
2005	1.38	74.1	75.6	77.5	78.7	0.85	80.6	81.5	82.6	83.4
2006	1.35	74.6	76.0	78.0	79.1	0.89	80.8	81.7	82.8	83.8

Data source: Federal State Offices of Statistics, Germany

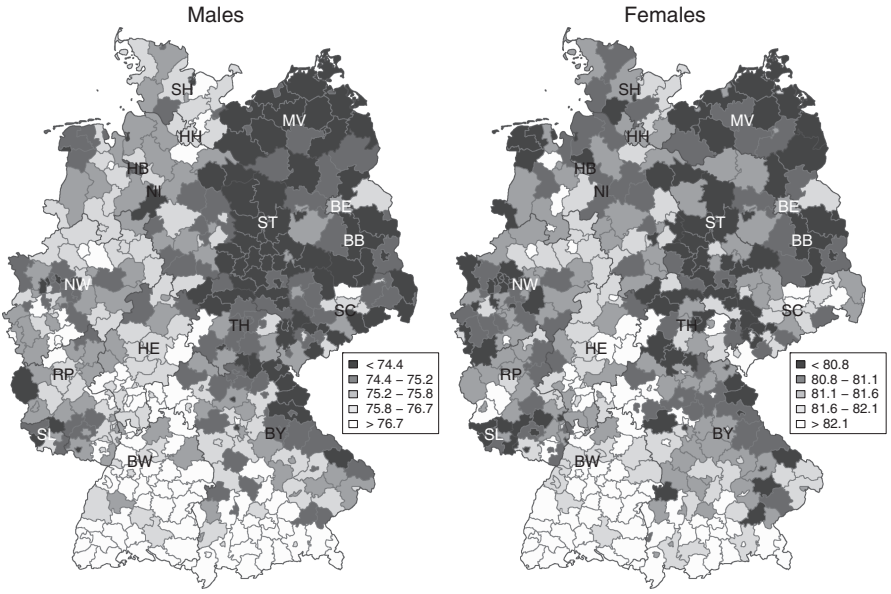

Fig. B.3 Life expectancy by district; 2001–2003. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

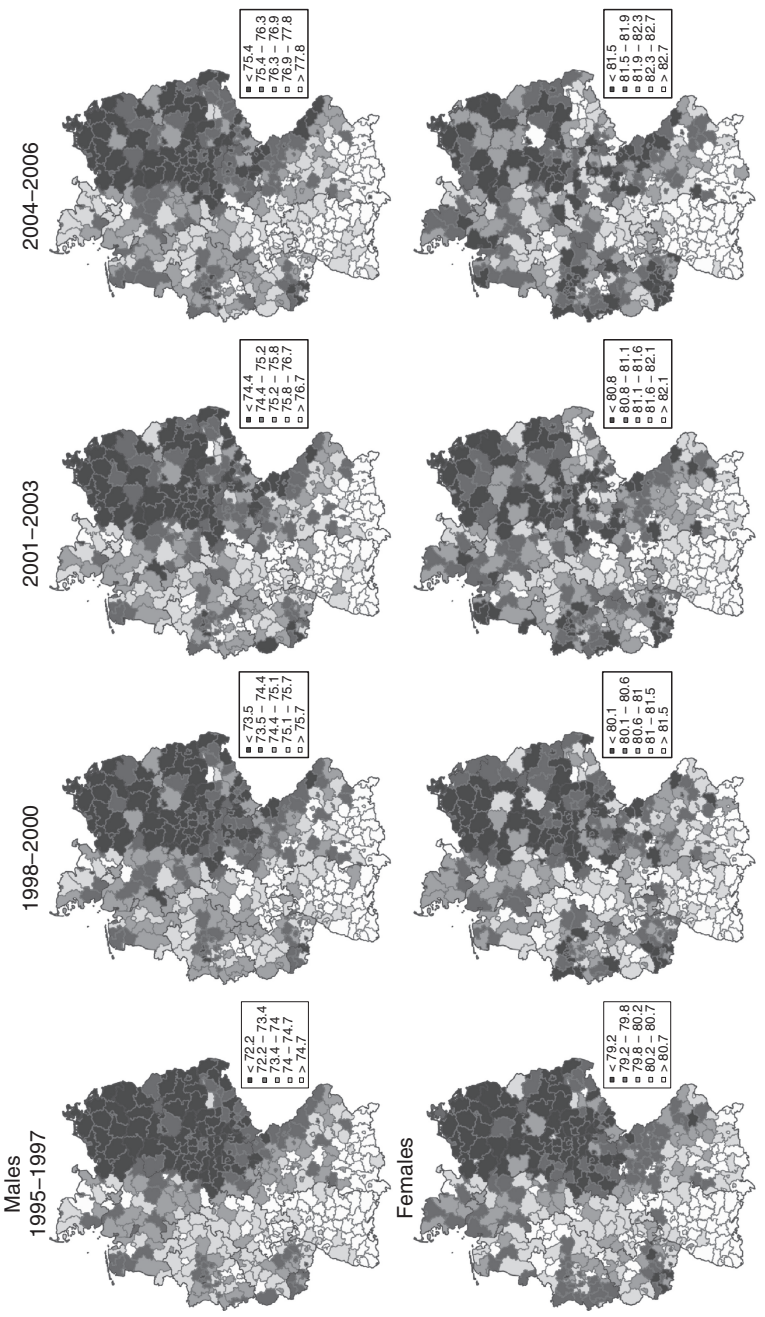

Fig. B.4 Life expectancy by district; 1995–1997, 1998–2000, 2001–2003, 2004–2006 (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

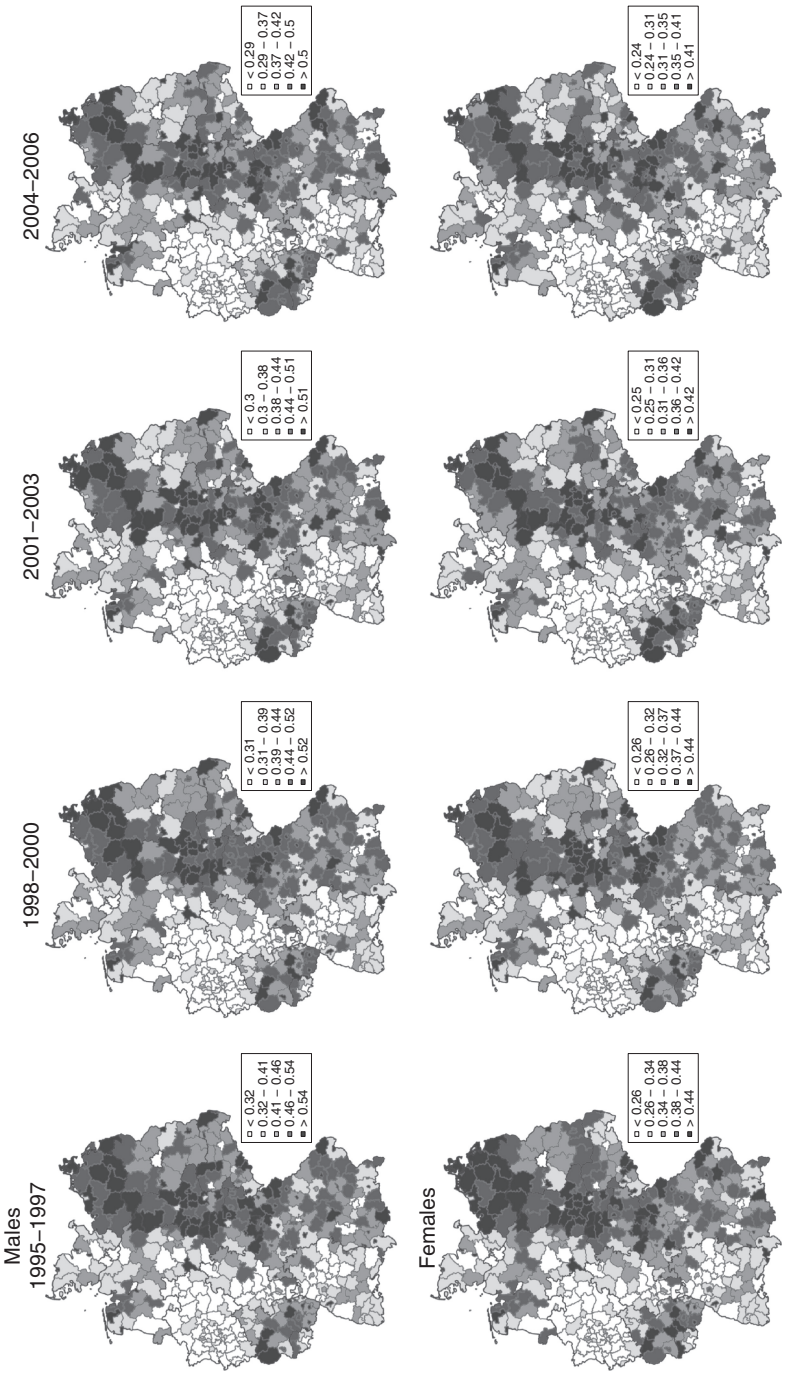

Fig. B.5 Standard error of life expectancy as percentage of life expectancy by district; 1995–1997, 1998–2000, 2001–2003, 2004–2006 (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

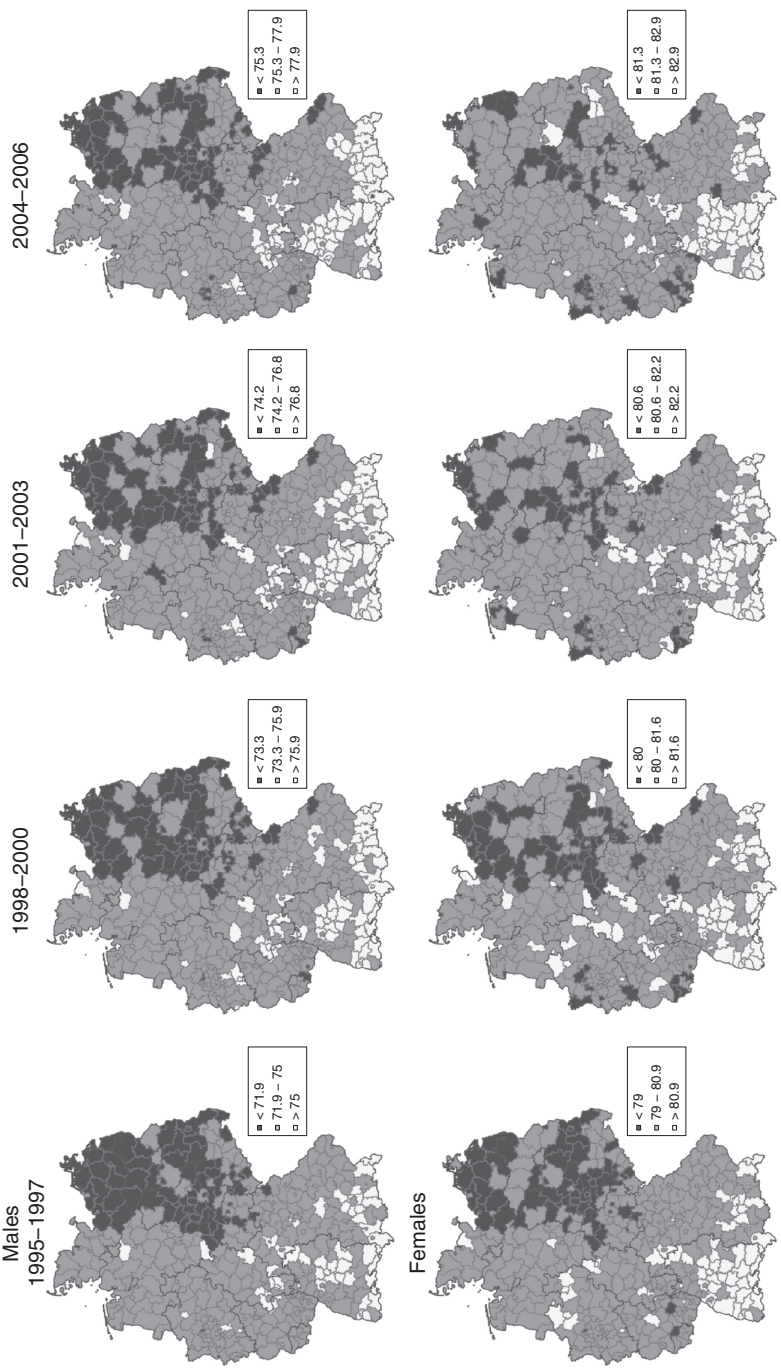

Fig. B.6 Life expectancy by district (cut points: one standard deviation above and below the mean); 1995–1997, 1998–2000, 2001–2003, 2004–2006 (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

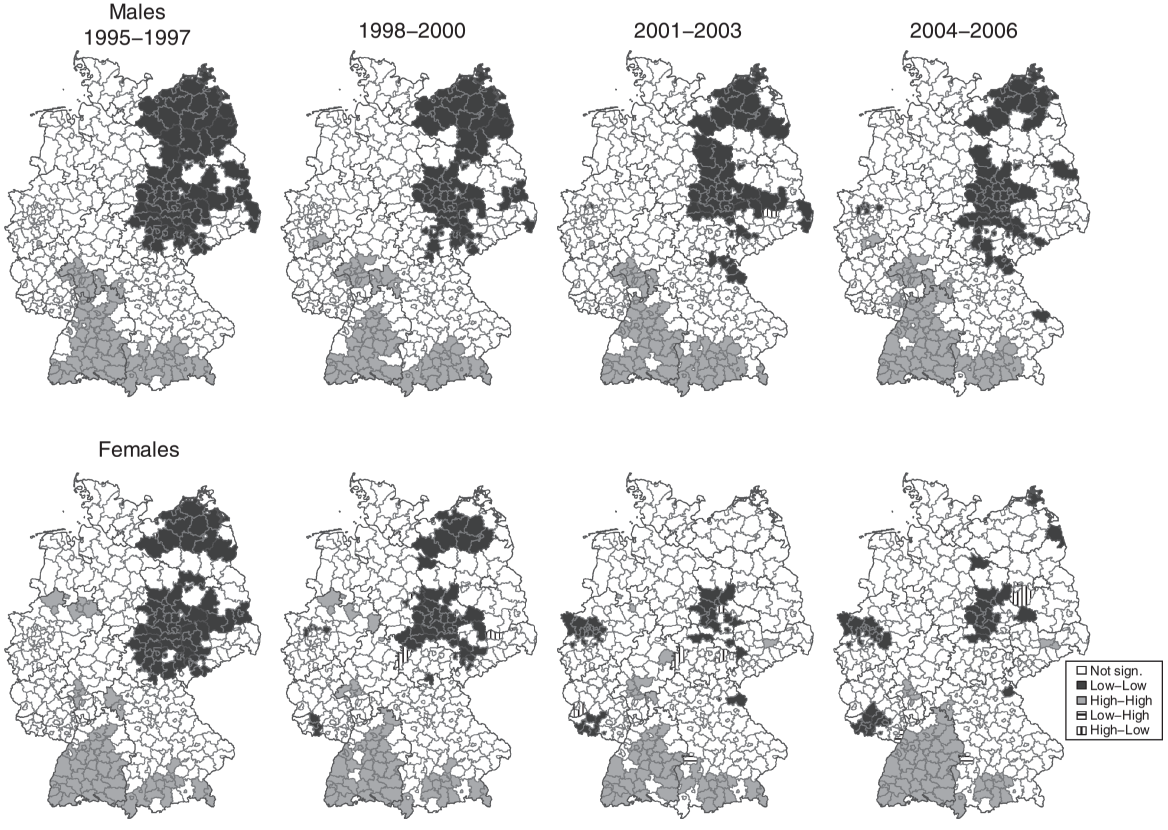

Fig. B.7 Local Moran's I of life expectancy by district, only districts with significant autocorrelation ($p < 0.05$); 1995–1997, 1998–2000, 2001–2003, 2004–2006 (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

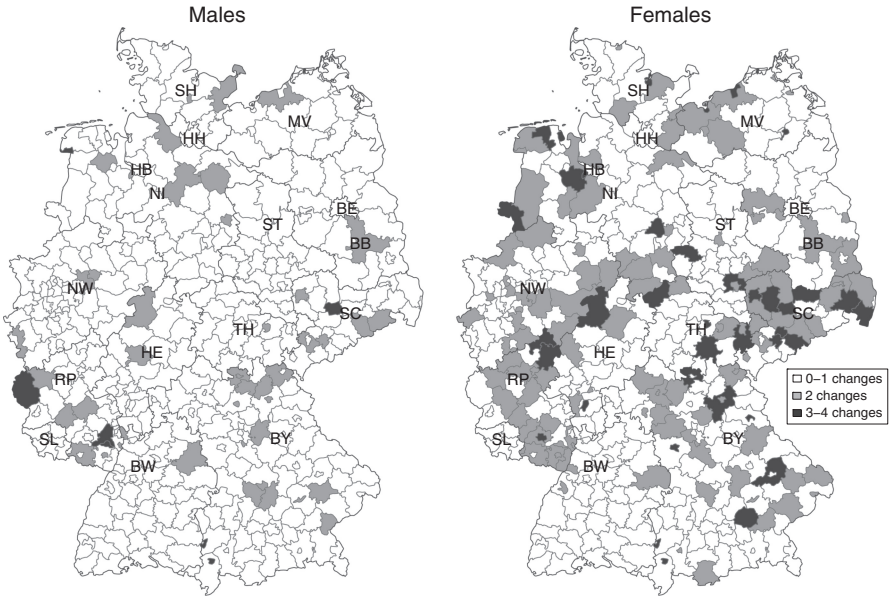

Fig. B.8 Number of maximum rank changes in life expectancy over the four time points 1995–1997, 1998–2000, 2001–2003, and 2004–2006 by district. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.9 SDR by leading causes of death by district, males; 1996–1998 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

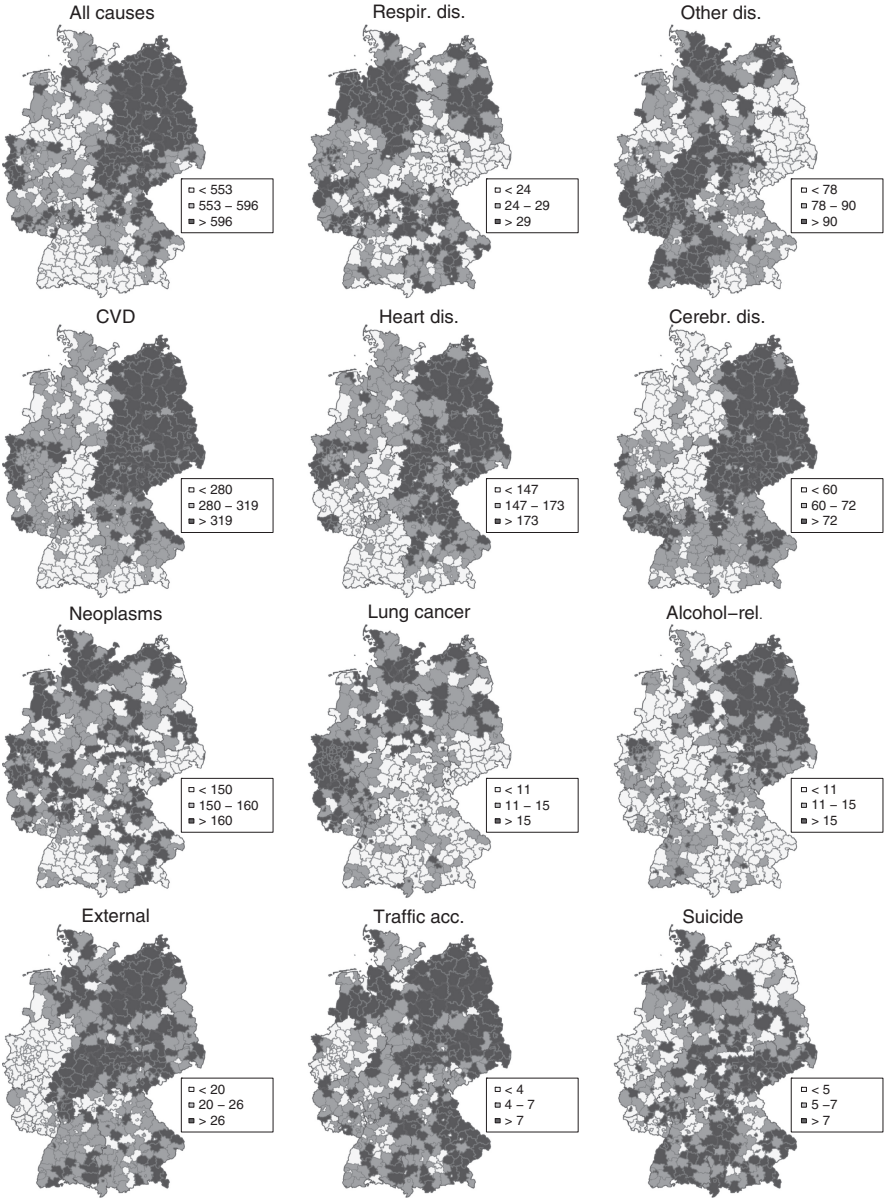

Fig. B.10 SDR by leading causes of death by district, females; 1996–1998 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.11 SDR by leading causes of death by district, males; 1998–2000 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.12 SDR by leading causes of death by district, females; 1998–2000 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

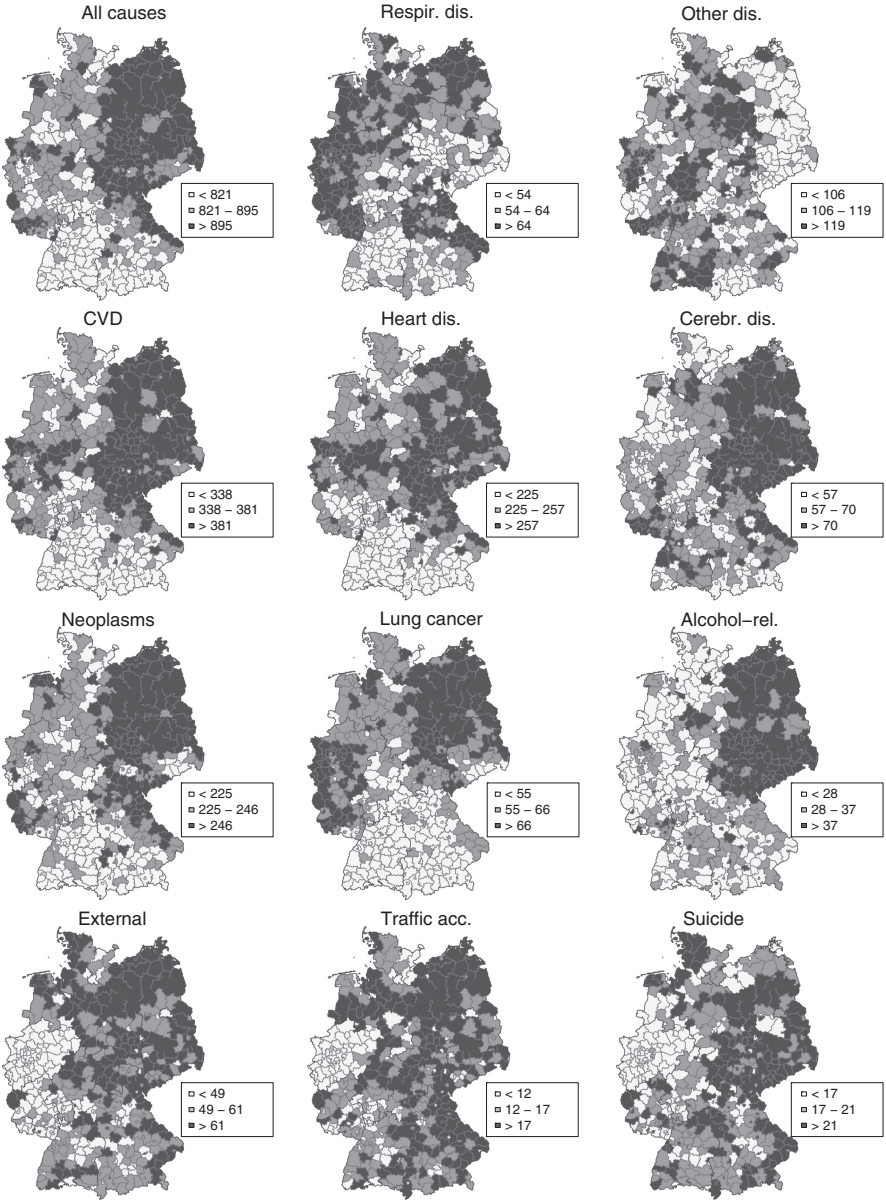

Fig. B.13 SDR by leading causes of death by district, males; 2001–2003 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

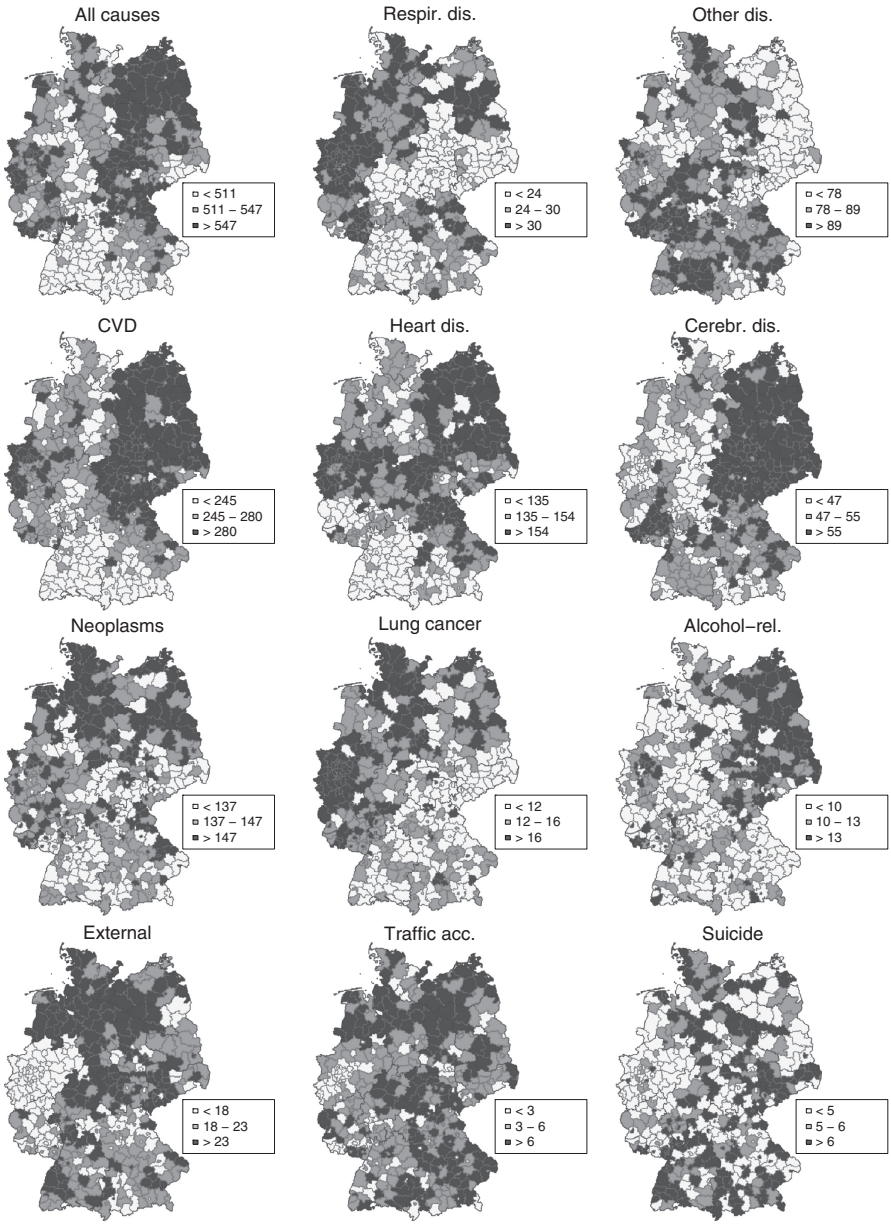

Fig. B.14 SDR by leading causes of death by district, females; 2001–2003 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.15 Local Moran's I of SDR by leading causes of death by district, males; 1996–1998. Legend description: Low-Low (*High-High*): Positive spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with low (*high*) life expectancy; Low-High (*High-Low*): Negative spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with high (*low*) life expectancy; only values significant at 5% level are shown (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.16 Local Moran's I of SDR by leading causes of death by district, females; 1996–1998. Legend description: Low-Low (*High-High*): Positive spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with low (*high*) life expectancy; Low-High (*High-Low*): Negative spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with high (*low*) life expectancy; only values significant at 5% level are shown (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.17 Local Moran's I of SDR by leading causes of death by district, males; 1998–2000. Legend description: Low-Low (*High-High*): Positive spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with low (*high*) life expectancy; Low-High (*High-Low*): Negative spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with high (*low*) life expectancy; only values significant at 5% level are shown (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.18 Local Moran's I of SDR by leading causes of death by district, females; 1998–2000. Legend description: Low-Low (*High-High*): Positive spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with low (*high*) life expectancy; Low-High (*High-Low*): Negative spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with high (*low*) life expectancy; only values significant at 5% level are shown (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

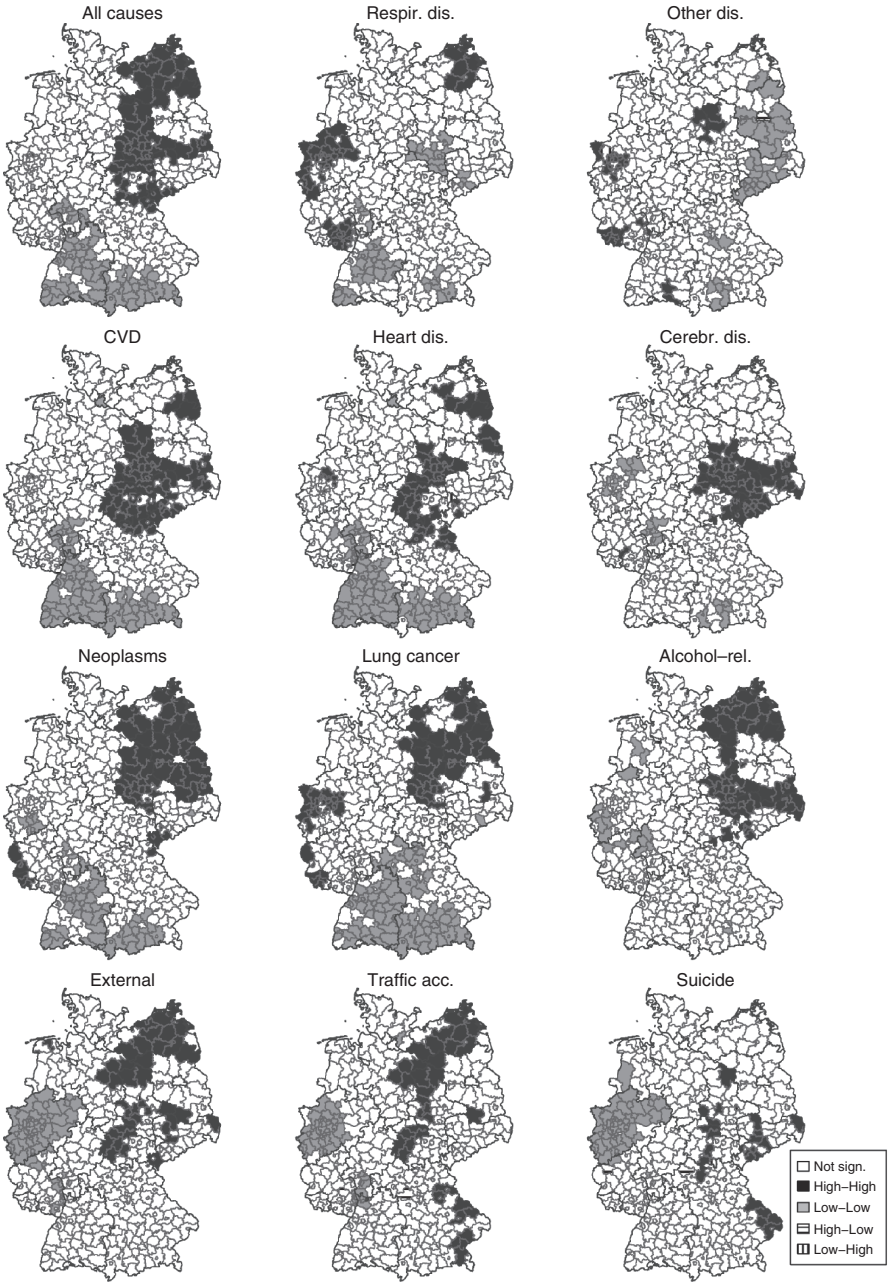

Fig. B.19 Local Moran's I of SDR by leading causes of death by district, males; 2001–2003. Legend description: Low-Low (*High-High*): Positive spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with low (*high*) life expectancy; Low-High (*High-Low*): Negative spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with high (*low*) life expectancy; only values significant at 5% level are shown (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Fig. B.20 Local Moran's I of SDR by leading causes of death by district, females; 2001–2003. Legend description: Low-Low (*High-High*): Positive spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with low (*high*) life expectancy; Low-High (*High-Low*): Negative spatial autocorrelation; district with low (*high*) life expectancy surrounded by districts with high (*low*) life expectancy; only values significant at 5% level are shown (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Table B.2 Correlation coefficients between districts' SDR from all causes and districts' SDR from leading causes of death; 1996–1998, 1998–2000, 2001–2003, 2004–2006

	1996–1998	1998–2000	2001–2003	2004–2006
Males				
Respiratory diseases	0.350	0.367	0.352	0.234
Cardiovascular diseases	0.908	0.911	0.897	0.882
Heart diseases	0.837	0.834	0.822	0.807
Cerebrovascular diseases	0.711	0.681	0.643	0.567
Neoplasms	0.732	0.778	0.829	0.855
Lung cancer	0.668	0.674	0.685	0.682
External causes	0.590	0.513	0.436	0.443
Traffic accidents	0.551	0.461	0.345	0.298
Suicide	0.364	0.207	0.257	0.036 (0.454)
Alcohol-related diseases	0.743	0.690	0.648	0.672
Other diseases	–0.018 (0.711)	0.033 (0.496)	0.065 (0.177)	0.339
Females				
Respiratory diseases	0.040 (0.408)	0.112 (0.012)	0.244	0.313
Cardiovascular diseases	0.871	0.856	0.807	0.757
Heart diseases	0.767	0.777	0.727	0.675
Cerebrovascular diseases	0.690	0.597	0.463	0.391
Neoplasms	0.419	0.463	0.521	0.516
Lung cancer	0.057 (0.232)	0.146 (0.002)	0.214	0.312
External causes	0.335	0.187	0.051 (0.284)	0.020 (0.673)
Traffic accidents	0.381	0.265	0.109 (0.023)	0.115 (0.016)
Suicide	0.047 (0.328)	–0.083 (0.081)	–0.1134 (0.018)	–0.106 (0.026)
Alcohol-related diseases	0.421	0.324	0.238	0.239
Other diseases	0.185	0.140 (0.003)	0.183	0.416

Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany
All correlations significant at 0.1% level if not indicated otherwise (*p*-value in parentheses)

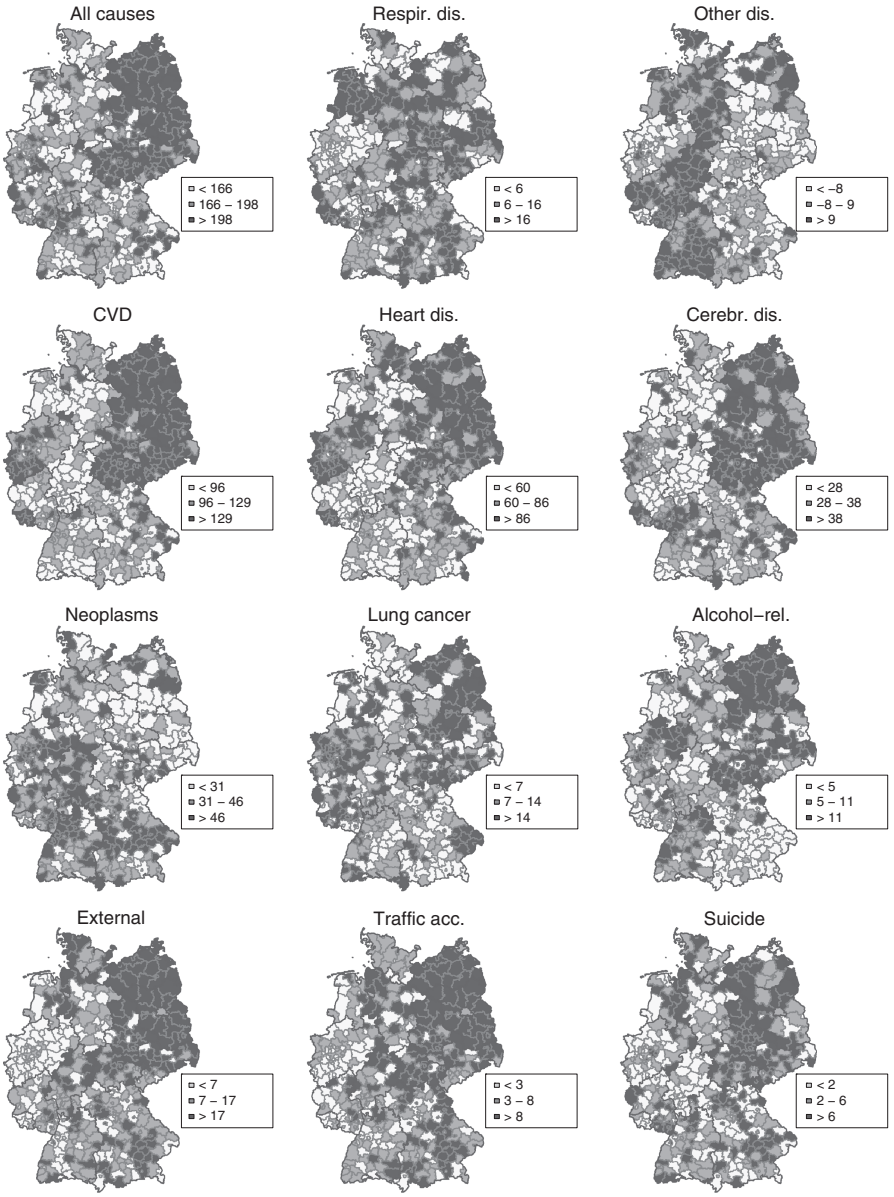

Fig. B.21 Absolute improvements in SDR by leading causes of death by district, males; 1996–1998 to 2004–2006 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

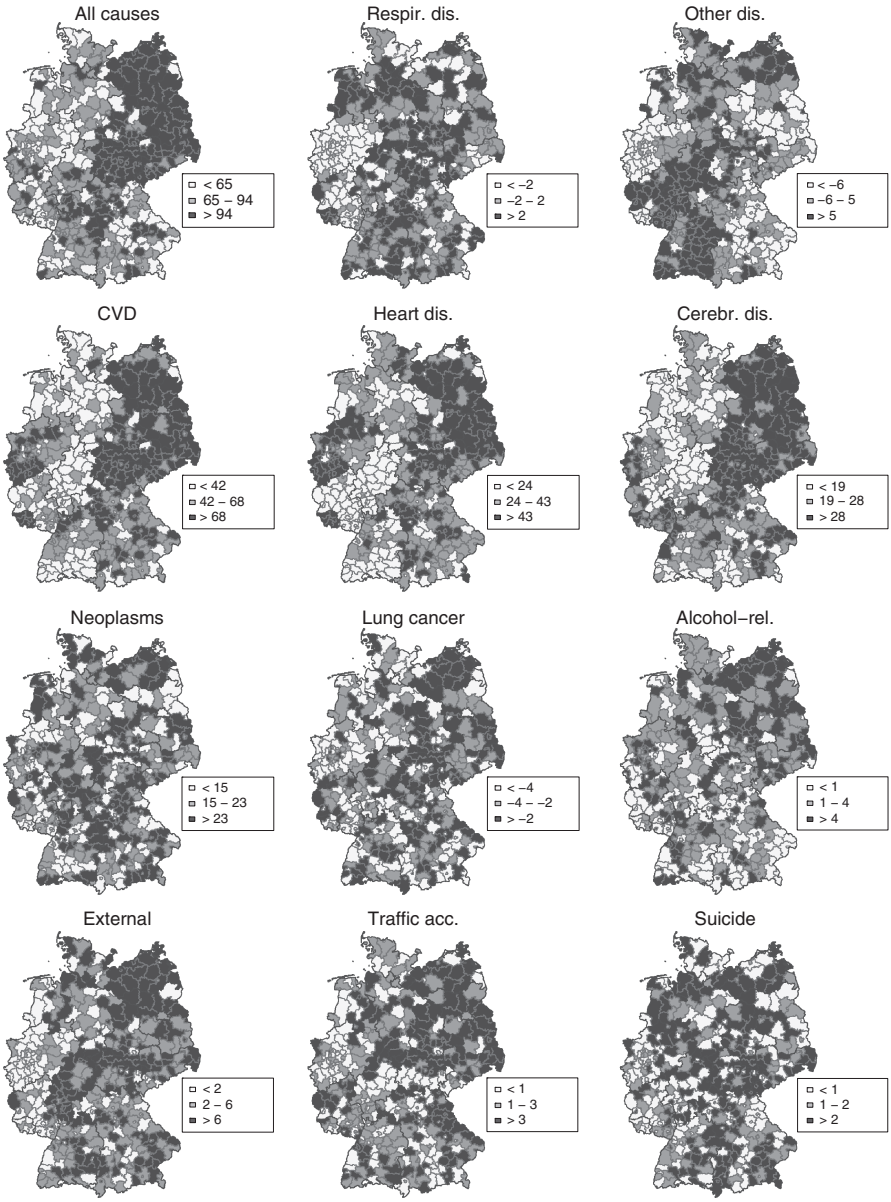

Fig. B.22 Absolute improvements in SDR by leading causes of death by district, females; 1996–1998 to 2004–2006 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

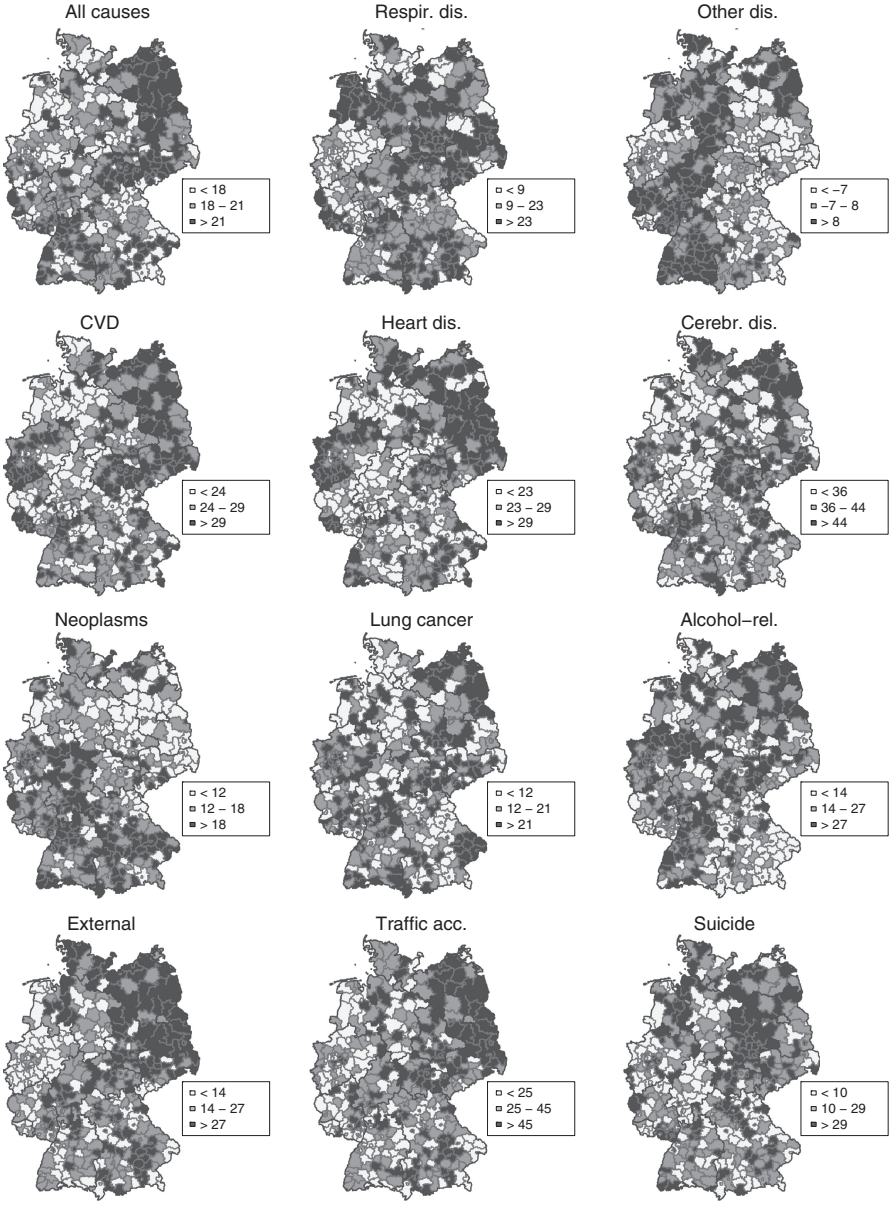

Fig. B.23 Relative improvements in SDR by leading causes of death by district, males; 1996–1998 to 2004–2006 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

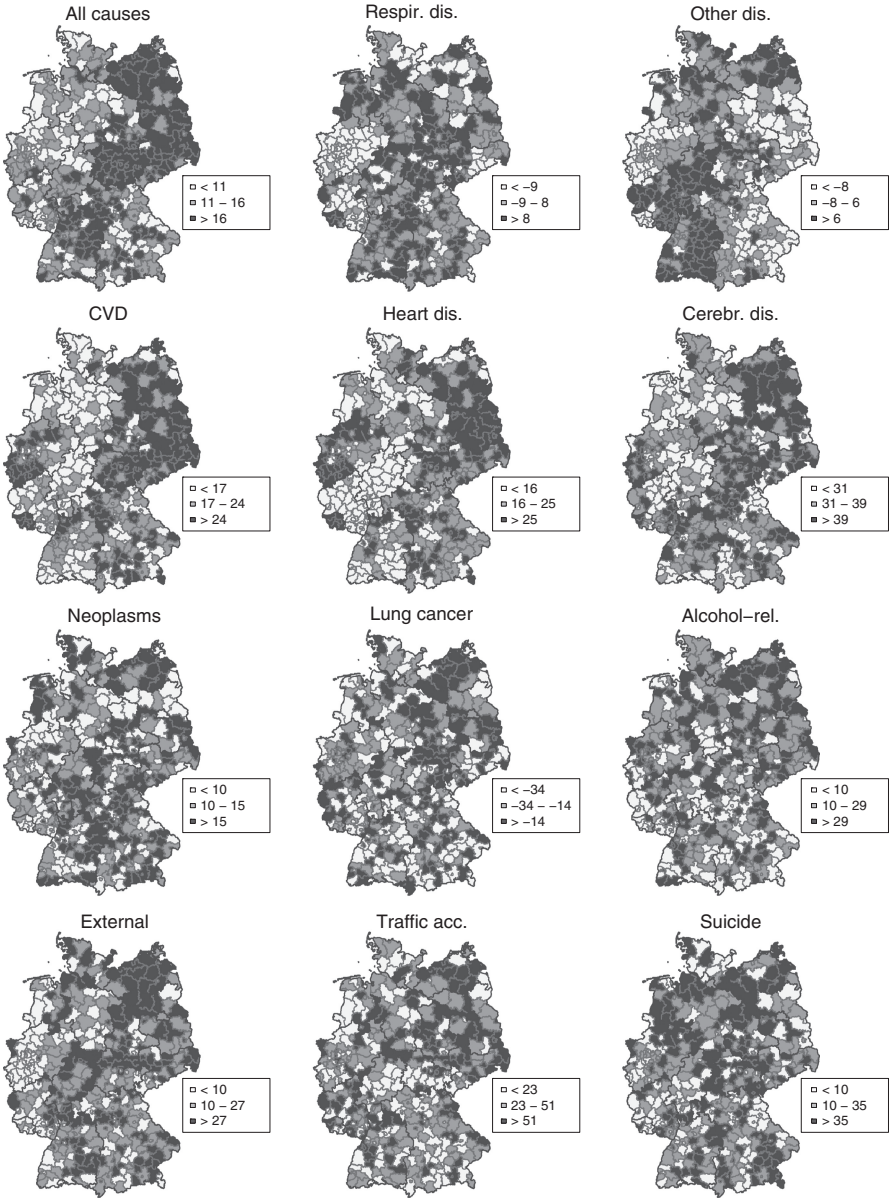

Fig. B.24 Relative improvements in SDR by leading causes of death by district, females; 1996–1998 to 2004–2006 (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Table B.3 Correlation coefficients of districts' SDR from leading causes of death between males and females; 1996–1998, 1998–2000, 2001–2003, 2004–2006

	1996–1998	1998–2000	2001–2003	2004–2006
All causes	0.853	0.826	0.792	0.754
Respiratory diseases	0.530	0.565	0.670	0.761
Cardiovascular diseases	0.929	0.916	0.908	0.878
Heart diseases	0.895	0.878	0.870	0.837
Cerebrovascular diseases	0.894	0.903	0.875	0.837
Neoplasms	0.378	0.406	0.395	0.344
Lung cancer	0.428	0.455	0.416	0.431
External causes	0.730	0.702	0.639	0.534
Traffic accidents	0.727	0.694	0.664	0.567
Suicide	0.393	0.280	0.259	0.296
Alcohol-related diseases	0.716	0.674	0.614	0.605
Other diseases	0.769	0.729	0.720	0.699

Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany
All correlations significant at 0.1% level

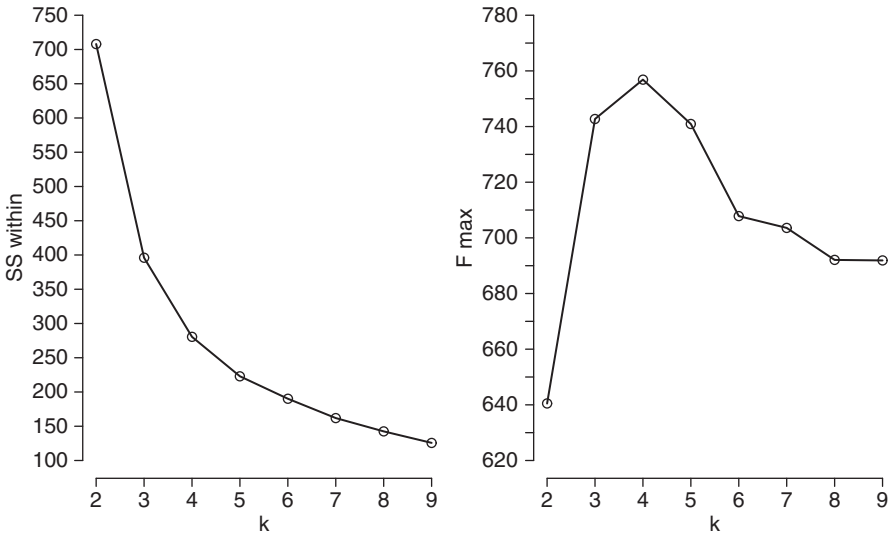

Fig. B.25 Classification of districts according to life expectancy level and change: SS_{within} and F_{max} of optimal solutions after 75,000 clustering rounds for $k = 2,...,k = 9$ (Data source: Federal State Offices of Statistics, Germany)

Table B.4 Correlation coefficients of districts' SDR from leading causes of death for different time periods

	1996–1998 to 1998–2000	1998–2000 to 2001–2003	2001–2003 to 2004–2006	1996–1998 to 2004–2006
Males				
All causes	0.934	0.932	0.930	0.885
Respiratory diseases	0.760	0.613	0.741	0.514
Cardiovascular diseases	0.926	0.920	0.880	0.852
Heart diseases	0.897	0.871	0.809	0.758
Cerebrovascular diseases	0.903	0.845	0.782	0.753
Neoplasms	0.792	0.728	0.776	0.700
Lung cancer	0.894	0.842	0.803	0.800
External causes	0.893	0.806	0.720	0.737
Traffic accidents	0.884	0.764	0.753	0.697
Suicide	0.707	0.539	0.462	0.433
Alcohol-related diseases	0.929	0.876	0.897	0.837
Other diseases	0.779	0.663	0.560	0.410
Females				
All causes	0.876	0.867	0.849	0.682
Respiratory diseases	0.776	0.676	0.812	0.615
Cardiovascular diseases	0.934	0.919	0.862	0.800
Heart diseases	0.905	0.845	0.756	0.684
Cerebrovascular diseases	0.932	0.880	0.847	0.781
Neoplasms	0.608	0.513	0.547	0.440
Lung cancer	0.827	0.743	0.806	0.771
External causes	0.775	0.637	0.508	0.528
Traffic accidents	0.717	0.484	0.468	0.508
Suicide	0.570	0.248	0.184	0.235
Alcohol-related diseases	0.783	0.574	0.635	0.600
Other diseases	0.800	0.708	0.581	0.412

Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany
All correlations significant at 0.1% level

Table B.5 Contribution of cause-specific mortality to differences in life expectancy between rural and urban areas in East and West Germany; 1996–1997 and 2004–2006

	East Germany, rural–urban				West Germany, rural–urban			
	1996–1997	2004–2006	1996–1997	2004–2006	1996–1997	2004–2006	1996–1997	2004–2006
	m	m	f	f	m	m	f	f
All causes	−1.440	−1.051	−0.627	−0.381	0.590	0.570	0.174	0.298
Resp. diseases	−0.055	0.023	0.057	0.081	0.016	0.076	0.040	0.097
Cardiovascular diseases	−0.844	−0.828	−0.986	−0.902	0.088	0.048	−0.163	−0.123
Heart diseases	−0.470	−0.591	−0.377	−0.556	0.092	0.053	−0.016	−0.023
Cerebrovascular diseases	−0.254	−0.270	−0.432	−0.355	−0.033	−0.054	−0.129	−0.095
Neoplasms	−0.216	−0.222	0.079	0.131	0.154	0.169	0.100	0.158
Lung cancer	−0.050	−0.030	0.119	0.156	0.143	0.138	0.109	0.139
External causes	−0.599	−0.342	−0.155	−0.051	−0.244	−0.204	−0.047	−0.035
Traffic accidents	−0.484	−0.280	−0.158	−0.107	−0.245	−0.178	−0.080	−0.060
Suicide	−0.084	−0.048	0.016	0.038	−0.016	−0.022	0.024	0.034
Alcohol-related diseases	−0.111	−0.001	0.058	0.068	0.199	0.144	0.131	0.085
Other diseases	0.385	0.319	0.320	0.291	0.378	0.338	0.113	0.117

Data source: Federal State Offices of Statistics Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany

Table B.6 Contribution of cause-specific mortality to differences in life expectancy between cluster "Prosperous South" and the three other clusters; 1996–1997 and 2004–2006

	Life expectancy cluster "Prosperous South" compared to					
	Wealthy West		Heterogeneous Germany		Laggard East	
	1996–1997	2004–2006	1996–1997	2004–2006	1996–1997	2004–2006
Males						
All causes	−1.045	−1.234	−2.171	−2.250	−4.036	−3.651
Respiratory diseases	−0.132	−0.137	−0.208	−0.222	−0.222	−0.191
Cardiovascular diseases	−0.411	−0.510	−1.054	−0.901	−1.802	−1.523
Heart diseases	−0.308	−0.360	−0.756	−0.582	−1.233	−1.021
Cerebrovascular diseases	−0.010	−0.037	−0.133	−0.071	−0.317	−0.213
Neoplasms	−0.238	−0.279	−0.379	−0.515	−0.673	−0.844
Lung cancer	−0.167	−0.170	−0.295	−0.290	−0.397	−0.388
External causes	−0.064	−0.032	−0.112	−0.054	−0.612	−0.269
Traffic accidents	−0.055	−0.033	−0.072	−0.017	−0.364	−0.134
Suicide	0.020	0.022	0.004	0.019	−0.057	0.014
Alcohol-related diseases	−0.034	−0.007	−0.164	−0.125	−0.508	−0.339
Other diseases	−0.166	−0.270	−0.255	−0.432	−0.221	−0.486
Females						
All causes	−0.693	−0.921	−1.415	−1.557	−2.413	−2.130
Respiratory diseases	−0.067	−0.100	−0.084	−0.150	−0.058	−0.089
Cardiovascular diseases	−0.414	−0.437	−0.966	−0.778	−1.726	−1.345
Heart diseases	−0.294	−0.271	−0.657	−0.446	−1.054	−0.780
Cerebrovascular diseases	−0.024	−0.053	−0.150	−0.084	−0.423	−0.265
Neoplasms	−0.151	−0.190	−0.203	−0.260	−0.243	−0.282
Lung cancer	−0.042	−0.073	−0.085	−0.118	−0.048	−0.063
External causes	0.009	−0.001	0.023	0.002	−0.117	−0.036
Traffic accidents	−0.013	−0.008	−0.019	0.000	−0.117	−0.045
Suicide	0.017	0.011	0.022	0.016	0.032	0.034
Alcohol-related diseases	−0.015	−0.001	−0.066	−0.035	−0.144	−0.077
Other diseases	−0.055	−0.192	−0.118	−0.336	−0.124	−0.301

Data source: Federal State Offices of Statistics Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany

Table B.7 ICD-9 and ICD-10 codes for health-care- and health behavior-related causes of death

Causes of death	ICD-10	ICD-9	Age group
Causes amenable to health care			
Intestinal infection	A00–A09	001–009	0–14
Tuberculosis	A15–A19, B90	010–018, 137	0–74
Other infectious diseases (diphtheria, tetanus, poliomyelitis)	A36, A35, A80	032, 037, 045	0–74
Whooping cough	A37	33	0–14
Septicemia	A40, A41	38	0–74
Measles	B05	55	1–14
Malignant neoplasm of colon and rectum	C18–C21	153, 154	0–74
Malignant neoplasm of skin	C44	173	0–74
Malignant neoplasm of breast	C50	174	0–74
Malignant neoplasm of cervix uteri	C53	180	0–74
Malignant neoplasm of cervix uteri and body of the uterus	C54, C55	179, 182	0–44
Malignant neoplasm of the testis	C62	186	0–74
Hodgkin's diseases	C81	201	0–74
Leukemia	C91–C95	204–208	0–44
Diseases of the thyroid	E00–E07	240–246	0–74
Diabetes mellitus	E10–E14	250	0–49
Epilepsy	G40–G41	345	0–74
Chronic rheumatic heart disease	I05–I09	393–398	0–74
Hypertensive diseases	I10–I13, I15	401–405	0–74
Ischemic heart diseases[a]	I20–I25	410–414	0–74
Cerebrovascular diseases	I60–I69	430–438	0–74
Respiratory diseases (excl. influenza and pneumonia)	J00–J09, J20–J99	460–479, 488–519	1–14
Influenza	J10–J11	487	0–74
Pneumonia	J12–J18	480–486	0–74
Peptic ulcer	K25–K27	531–533	0–74
Appendicitis	K35–K38	540–543	0–74
Abdominal hernia	K40–K46	550–553	0–74
Cholelithiasis and cholecystitis	K80–K81	574–575.1	
Nephritis and nephrosis	N00–N07, N17–N19, N25–N27	580–589 580–589	0–74 0–74
Benign prostatic hyperplasia	N40	600	0–74
Maternal deaths	O00–O99	630–676	All
Congenital cardiovascular anomalies	Q20–Q28	745–747	0–74
Perinatal deaths (excl. stillbirths)	P00–P96, A33, A34	760–779	All
Misadventures to patients during surgical and medical care	Y60–Y69, Y83, Y84	E870–E876, E878–E879	All
Causes amenable to health behavior			
Malignant neoplasm of trachea, bronchus, and lung	C33, C34	162	0–74
Cirrhosis of liver	K70, K73–K74	571	0–74

Source: Nolte and McKee (2004, p. 66) and Nolte et al. (2002, p. 1907)
[a]Half of deaths included

Table B.8 Correlation coefficients between the explanatory variables selected for the pooled cross-sectional time series analysis; 1996–2006 (pooled)

	1.	2.	3.	4.	5.	6.	7.
1. GDP p.c. (in 1,000 euro)	1						
2. Income p.c. (in 1,000 euro)	0.49	1					
3. Living space (in m^2)	0.12	0.40	1				
4. % school graduates w/o degree	–0.18	–0.42	–0.16	1			
5. % annual population change	0.08	0.26	0.17	–0.18	1		
6. Health policy, males	–0.18	–0.47	–0.43	0.28	–0.25	1	
7. Health policy, females	0.05	–0.14	–0.25	0.13	–0.09	0.36	1

Data source: See Table 4.3 for more information and data sources of variables
All correlations significant at 0.1% level

Table B.9 Mean and standard deviation (SD) of district-level life expectancy and explanatory variables selected for pooled cross-sectional time series analysis for Germany, East and West Germany; 1996–2006 (pooled)

	Germany		West Germany		East Germany	
Variable	Mean	SD	Mean	SD	Mean	SD
e_0 males (in years)	75.23	1.78	75.71	1.51	73.81	1.73
e_0 females (in years)	81.20	1.18	81.39	1.07	80.68	1.31
GDP p.c. (in 1,000 euro)	23.47	9.57	25.67	9.90	17.05	4.21
% annual population change	–0.02	1.26	0.22	0.55	–0.74	2.16
% school graduates w/o degree	9.10	2.65	8.50	2.31	10.83	2.81
Income p.c. (in 1,000 euro)	16.82	2.30	17.75	1.88	14.11	0.79
Living space p.c. (in m^2)	39.26	3.84	40.67	3.09	35.16	2.69
Health policy, males	19.83	2.39	19.14	2.01	21.83	2.30
Health policy, females	17.81	2.31	17.68	2.25	18.18	2.43

Data source: See Table 4.3 for more information and data sources of variables

Table B.10 Mean and standard deviation (SD) of district-level life expectancy and explanatory variables selected for pooled cross-sectional time series analysis, Germany; 1996–2006

	e_0 males (in years)		e_0 females (in years)		GDP p.c. (in 1,000 euro)		% annual population change		% school graduates w/o degree	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1996	73.40	1.60	79.89	1.06	21.03	8.30	0.31	0.96	8.95	2.48
1997	73.90	1.57	80.29	1.00	21.45	8.48	0.17	0.98	9.08	2.52
1998	74.32	1.41	80.58	0.98	22.08	8.94	0.04	0.98	9.31	2.58
1999	74.64	1.36	80.82	0.88	22.60	9.16	–0.02	3.14	9.26	2.66
2000	74.94	1.42	81.10	0.94	23.17	9.48	0.02	0.86	9.63	2.78
2001	75.38	1.35	81.36	0.89	23.65	9.72	0.03	0.88	10.13	3.24
2002	75.55	1.43	81.39	0.93	24.00	9.61	0.02	0.85	9.50	2.58
2003	75.62	1.41	81.49	0.87	24.18	9.69	–0.07	0.95	9.17	2.57
2004	76.31	1.43	82.02	0.89	24.75	9.84	–0.18	0.68	8.57	2.43
2005	76.50	1.38	82.04	0.86	25.15	10.16	–0.21	0.72	8.37	2.25
2006	76.92	1.36	82.28	0.89	26.08	10.51	–0.35	0.67	8.11	2.35

(continued)

Table B.10 (continued)

	Income p.c. (in 1,000 euro)		Living space (in m^2)		Health policy, males		Health policy, females	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1996	16.22	2.25	36.76	3.72	20.87	2.54	19.07	2.24
1997	16.21	2.20	37.34	3.63	20.81	2.45	19.05	2.29
1998	16.25	2.33	37.90	3.57	20.29	2.38	18.15	2.25
1999	16.69	2.27	38.48	3.54	20.05	2.48	18.14	2.16
2000	17.04	2.28	39.02	3.52	20.04	2.28	18.00	2.20
2001	17.06	2.29	39.43	3.47	19.91	2.22	17.91	2.26
2002	16.96	2.21	39.80	3.45	19.66	2.25	17.43	2.25
2003	17.10	2.19	40.17	3.47	19.23	2.18	16.89	2.00
2004	17.09	2.24	40.59	3.53	19.38	2.31	17.43	2.15
2005	17.10	2.35	40.97	3.59	18.89	2.15	16.93	2.10
2006	17.25	2.38	41.41	3.67	19.00	2.13	17.00	2.18

Data source: See Table 4.3 for more information and data sources of variables

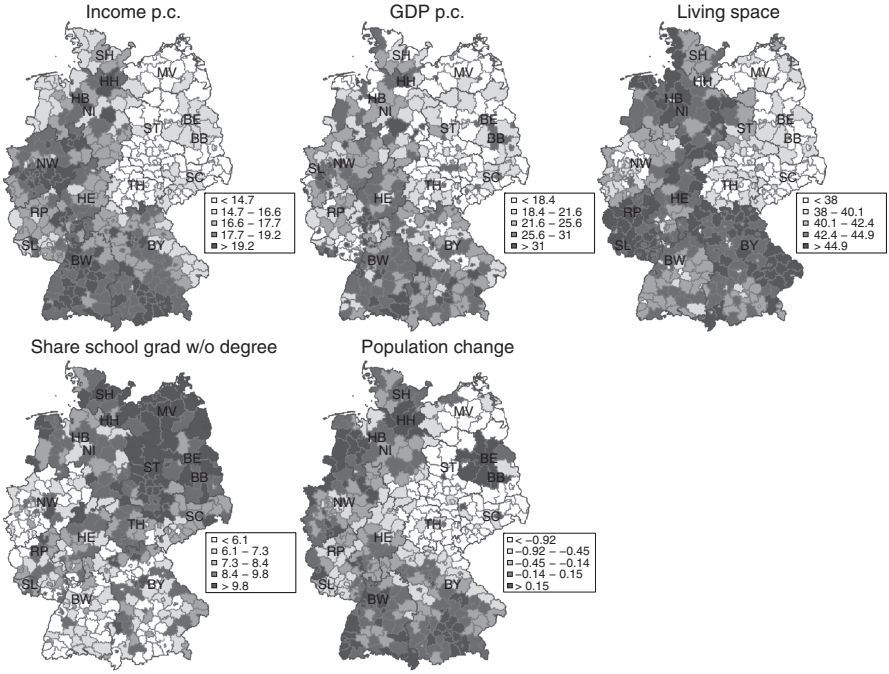

Fig. B.26 Context indicators by district: income p.c., GDP p.c., living space, share school graduates without degree, population change; 2006. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SC* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (see Table 4.3 for data sources of variables. Base map: German Federal Agency for Cartography and Geodesy 2007)

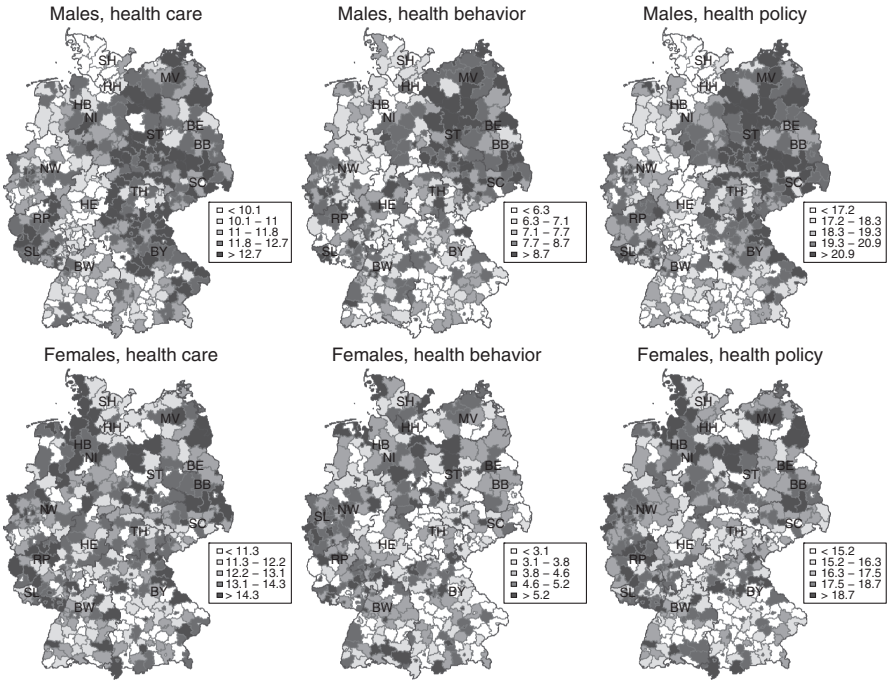

Fig. B.27 Health care, health behavior, and health policy by district: share of respective deaths in all deaths (SDR); 2006. *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SC* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: Federal State Offices of Statistics, Germany; Research Data Center of the Federal Statistical Office and the Federal State Offices of Statistics, Germany. Base map: German Federal Agency for Cartography and Geodesy 2007)

Table B.11 R^2 in stepwise regression models with BE, FE, RE specification; variables added according to greatest further improvement of respective R^2; 1996–2006

	Males				Females		
BE	Within	*Between*	Overall		Within	*Between*	Overall
Health policy	0.144	0.678	0.377	Income	0.309	0.345	0.212
+ Income	0.198	0.763	0.488	+ Health policy	0.250	0.454	0.331
+ School grad.	0.207	0.770	0.500	+ GDP	0.255	0.479	0.345
+ GDP	0.212	0.776	0.503	+ School grad.	0.256	0.495	0.352
+ Pop. change	0.194	0.778	0.497	+ Living space	0.236	0.497	0.341
+ Living space				+ Pop. change			
= All var.	0.174	0.780	0.485	= All var.	0.221	0.498	0.333
FE	*Within*	Between	Overall		*Within*	Between	Overall
Health policy	0.763	0.678	0.410	Health policy	0.652	0.181	0.425
+ Living space	0.764	0.337	0.462	+ Living space	0.653	0.112	0.435
+ Income	0.764	0.515	0.526	+ Income	0.654	0.259	0.494
+ GDP	0.764	0.405	0.496	+ BIP	0.654	0.178	0.462
+ School grad.	0.764	0.425	0.503	+ School grad.	0.654	0.169	0.459
+ Pop. change				+ Pop. change			
= All var.	0.764	0.422	0.500	= All var.	0.648	0.161	0.452
RE	Within	Between	*Overall*		Within	Between	*Overall*
Income	0.755	0.540	0.622	Income	0.634	0.345	0.516
+ Health policy	0.756	0.626	0.675	+ Health policy	0.651	0.421	0.554
+ School grad.	0.756	0.640	0.682	+ GDP	0.651	0.431	0.558
+ Living space	0.758	0.638	0.686	+ School grad.	0.650	0.436	0.560
+ GDP	0.758	0.639	0.688	+ Pop. change	0.650	0.437	0.560
+ Pop. change				+ Living space			
= All var.	0.758	0.641	0.689	= All var.	0.651	0.425	0.557

Data source: See Table 4.3 for more information and data sources of variables

Appendix C: Determinants of Old-Age Mortality

Table C.1 Percentage distribution of population exposure (P) and deaths (D) for cross tabulation of type of health insurance by earning points and type of former occupation by earning points; original and final sample; 1998, 2001, 2004 (pooled)

	Original data				Final sample			
	Males		Females		Males		Females	
	P	D	P	D	P	D	P	D
Type of health insurance * earning points								
PMI								
0–29	54.1	64.0	85.2	88.5				
30–44	13.2	13.9	8.5	6.7	28.3	38.5	57.1	57.9
44–54	7.8	6.3	3.2	2.6	16.8	17.5	21.6	22.5
55+	25.0	15.8	3.2	2.3	54.8	44.0	21.3	19.6
CHI								
0–29	11.3	13.4	72.7	79.8				
30–44	25.4	28.4	22.2	16.4	27.8	32.3	81.6	81.1
44–54	31.2	29.6	3.5	2.6	35.5	34.4	13.0	12.8
55+	32.2	28.6	1.5	1.2	36.7	33.3	5.5	6.1
Other								
0–29	77.9	77.7	98.3	97.6				
30–44	12.5	11.7	1.3	1.9	55.5	50.5	77.9	77.2
44–54	4.1	3.4	0.2	0.3	18.7	16.0	13.7	12.4
55+	5.5	7.1	0.1	0.2	25.8	33.6	8.4	10.5
Type of former occupation * earning points								
Blue-collar								
0–29	22.2	23.0	83.5	87.9				
30–44	30.8	33.1	15.8	11.7	38.7	42.4	96.0	96.3
44–54	31.8	29.2	0.6	0.4	41.6	38.3	3.5	3.3
55+	15.1	14.7	0.1	0.1	19.8	19.3	0.5	0.4
White-collar								
0–29	14.5	14.3	63.3	68.4				
30–44	14.0	16.7	26.4	22.3	16.2	19.3	71.7	70.5
44–54	20.3	21.3	7.0	6.1	23.7	24.8	19.0	19.3
55+	51.1	47.8	3.4	3.2	60.1	55.9	9.3	10.2
Miner								
0–29	6.4	5.9	62.6	74.9				
30–44	19.9	23.5	31.5	21.9	20.6	24.6	84.1	87.0
44–54	35.9	38.2	4.2	2.3	38.5	40.8	11.2	9.1
55+	37.9	32.4	1.7	1.0	40.9	34.6	4.7	3.9

Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele

Table C.2 Mean, standard deviation (SD), minimum and maximum of district-level contextual variables; 1995–2003 (pooled)

Variable	Mean	SD	Min.	Max.	Source
Economy					
Unemployment rate	10.5	4.7	3.8	23.2	A
Income per capita	16,630.0	2,244.3	12,193.5	27,736.6	B
GDP per capita	22.5	9.0	11.2	67.4	B
% employed	33.3	2.5	25.7	40.2	B
% employed sec. sector	0.3	0.1	0.1	0.6	B
% employed tert. sector	0.6	0.1	0.0	0.9	B
Net business registrations	114.4	73.0	−151.9	432.0	B
Social conditions					
Voter turnout	79.0	4.3	65.2	86.9	B
Living space	38.4	3.5	30.1	48.9	B
Detached housing	81.6	12.6	40.8	97.0	B
Divorce rate	444.0	598.1	62.4	9,471.8	D
Welfare recipients	285.7	158.3	41.2	1,137.0	B
Education					
% empl. w university degree	17.3	4.7	8.2	31.8	B
% empl. w/o degree	7.7	3.5	2.9	23.7	B
% school graduates w *Abitur*	23.0	7.8	0.0	52.4	B
% school grad. w/o degree	9.3	2.3	3.6	15.5	B
Population					
% annual population change	0.8	6.6	−35.0	29.7	E
Net migration	2.3	6.4	−32.8	25.2	B
Population density	509.2	657.9	40.9	3,922.2	B
Urban vs. rural district	na	na	1	2	B
Population forecast 2010	99.4	4.8	81.1	113.4	F
Health care and traffic accidents					
Hospital beds	6.9	3.9	0.0	24.3	B
Physicians	140.5	44.4	76.1	336.4	B
Traffic accidents	651.4	109.1	401.3	1,042.4	B
Fatal traffic accidents	1,736.7	826.0	378.4	4,139.2	B

Data sources: A-Bundesagentur für Arbeit; B-Regionaldatenbank Deutschland; D-Deutsches Jugendinstitut, Regionaldatenbank; E-Federal State Offices of Statistics, Germany; F-INKAR
See Table 4.3 for more information

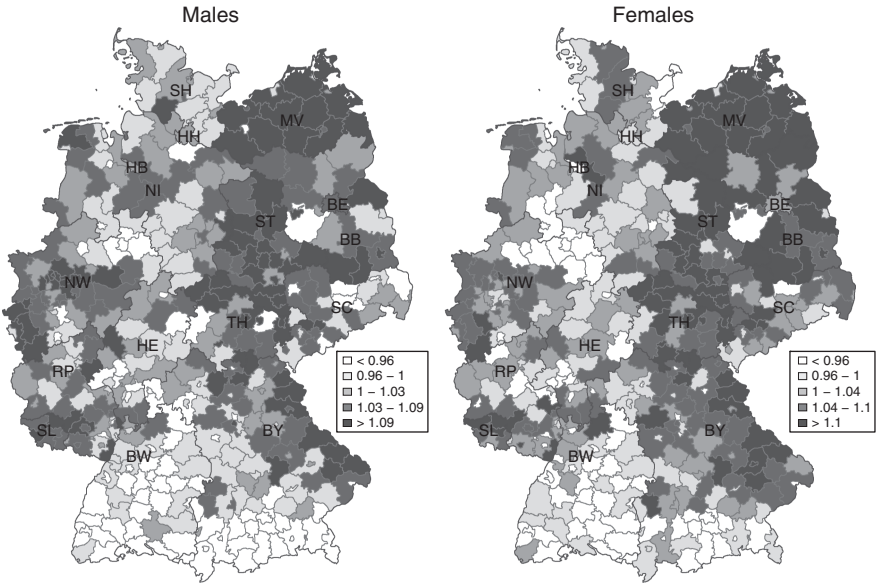

Fig. C.1 Age-standardized MRR by district, sample without income restriction; 1998, 2001, 2004 (pooled). *SH* Schleswig-Holstein, *HH* Hamburg, *NI* Lower Saxony, *HB* Bremen, *NW* North Rhine-Westphalia, *HE* Hesse, *RP* Rhineland-Palatinate, *BW* Baden-Württemberg, *BY* Bavaria, *SL* Saarland, *BE* Berlin, *BB* Brandenburg, *MV* Mecklenburg-Western Pomerania, *SN* Saxony, *ST* Saxony-Anhalt, *TH* Thuringia (Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele. Base map: German Federal Agency for Cartography and Geodesy 2007)

Table C.3 Single-level models: log likelihood in various models with individual-level covariates; final sample and sample without income restriction; 1998, 2001, 2004 (pooled)

	Final sample		Sample without income restriction	
Variables in the model	Males	Females	Males	Females
Age	−197,215	−65,696	−268,939	−178,431
Age + Occupation	−190,591	−64,891	−261,258	−174,701
Age + Health insurance	−194,582	−65,372	−265,500	−176,115
Age + Retirement age	−178,655	−62,679	−246,203	−160,623
Age + Earning points	−190,005	−65,376	−261,712	−177,988
Age + All individual-level covariates	−170,965	−61,325	−236,733	−155,461

Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele

Table C.4 Single-level models: MRRs by individual-level variables with 95% confidence intervals (in parentheses); 1998, 2001, 2004 (pooled)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Occupation				
White-collar	1	1	1	1
Blue-collar	**1.35**	**1.18**	**1.22**	**1.19**
	(1.34; 1.36)	(1.18; 1.19)	(1.21; 1.24)	(1.18; 1.21)
Miner	**1.34**	**1.10**	**1.12**	**1.09**
	(1.33; 1.36)	(1.09; 1.11)	(1.08; 1.16)	(1.05; 1.13)
Health insurance				
PMI	1	1	1	1
CHI	**1.54**	**1.35**	**1.48**	**1.37**
	(1.52; 1.56)	(1.33; 1.37)	(1.44; 1.53)	(1.32; 1.41)
Other	**2.21**	**2.07**	**1.73**	**1.76**
	(2.12; 2.31)	(1.98; 2.15)	(1.57; 1.91)	(1.59; 1.94)
Retirement age				
65+	1	1	1	1
60–64	**1.07**	**1.04**	**1.02**	1.00
	(1.06; 1.07)	(1.04; 1.05)	(1.01; 1.04)	(0.99; 1.02)
Before 60	**1.93**	**1.75**	**1.63**	**1.61**
	(1.91; 1.94)	(1.74; 1.77)	(1.60; 1.67)	(1.57; 1.65)
Missing	**0.18**	**0.18**	**0.08**	**0.08**
	(0.17; 0.19)	(0.17; 0.19)	(0.06; 0.09)	(0.07; 0.09)
Earning points				
30–44	1	1	1	1
45–54	**0.87**	**0.91**	**0.89**	**0.96**
	(0.87; 0.88)	(0.90; 0.91)	(0.87; 0.90)	(0.94; 0.97)
55+	**0.69**	**0.80**	**0.82**	**0.91**
	(0.69; 0.70)	(0.79; 0.80)	(0.80; 0.83)	(0.89; 0.93)

Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele
Model 1: controlled for age
Model 2: controlled for age and all other individual-level variables
Bold figures indicate values significant at 5% level

Table C.5 Single-level models: MRRs by individual-level variables with 95% confidence intervals (in parentheses); sample without income restriction; 1998, 2001, 2004 (pooled)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Occupation				
White-collar	1	1	1	1
Blue-collar	**1.35**	**1.19**	**1.21**	**1.19**
	(1.34; 1.35)	(1.18; 1.19)	(1.20; 1.21)	(1.19; 1.20)
Miner	**1.34**	**1.10**	**1.09**	**1.05**
	(1.33; 1.35)	(1.09; 1.12)	(1.07; 1.11)	(1.03; 1.06)

(continued)

Table C.5 (continued)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Health insurance				
PMI	1	1	1	1
CHI	**1.35**	**1.29**	**1.44**	**1.35**
	(1.34; 1.36)	(1.28; 1.31)	(1.44; 1.46)	(1.34; 1.37)
Other	**1.84**	**1.83**	**1.44**	**1.45**
	(1.80; 1.88)	(1.79; 1.87)	(1.41; 1.46)	(1.42; 1.47)
Retirement age				
65+	1	1	1	1
60–64	**1.07**	**1.05**	1.01	**1.02**
	(1.07; 1.08)	(1.05; 1.06)	(1.00; 1.01)	(1.01; 1.02)
Before 60	**1.90**	**1.76**	**1.61**	**1.63**
	(1.89; 1.92)	(1.75; 1.77)	(1.60; 1.62)	(1.62; 1.64)
Missing	**0.18**	**0.19**	**0.11**	**0.12**
	(0.17; 0.19)	(0.18; 0.20)	(0.10; 0.11)	(0.11; 0.12)
Earning points				
0–29	1	1	1	1
30–44	**1.17**	**1.05**	0.99	**1.02**
	(1.16; 1.18)	(1.04; 1.06)	(0.99; 1.00)	(1.01; 1.03)
45–54	**1.02**	**0.95**	**0.88**	**0.97**
	(1.01; 1.03)	(0.94; 0.96)	(0.87; 0.89)	(0.96; 0.99)
55+	**0.81**	**0.84**	**0.81**	**0.93**
	(0.80; 0.82)	(0.83; 0.85)	(0.79; 0.82)	(0.91; 0.94)

Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele
Model 1: controlled for age
Model 2: controlled for age and all other individual-level variables
Bold figures indicate values significant at 5% level

Table C.6 Multilevel models: MRRs by individual-level variables with 95% confidence intervals (in parentheses); sample without income restriction; 1998, 2001, 2004 (pooled)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Occupation				
White-collar	1	1	1	1
Blue-collar	**1.34**	**1.18**	**1.21**	**1.19**
	(1.33; 1.35)	(1.15; 1.19)	(1.21; 1.22)	(1.19; 1.20)
Miner	**1.26**	**1.11**	**1.03**	1.01
	(1.24; 1.27)	(1.10; 1.12)	(1.02; 1.05)	(1.00; 1.03)
Health insurance				
PMI	1	1	1	1
CHI	**1.37**	**1.28**	**1.45**	**1.35**
	(1.35; 1.38)	(1.27; 1.30)	(1.44; 1.47)	(1.34; 1.37)
Other	**1.60**	**1.59**	**1.44**	**1.43**
	(1.55; 1.64)	(1.55; 1.63)	(1.42; 1.46)	(1.41; 1.45)

(continued)

Table C.6 (continued)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Retirement age				
65+	1	1	1	1
60–64	**1.13**	**1.11**	1.00	**1.01**
	(1.13; 1.14)	(1.11; 1.12)	(0.98; 1.01)	(1.01; 1.02)
Before 60	**1.91**	**1.76**	**1.59**	**1.61**
	(1.89; 1.92)	(1.75; 1.77)	(1.58; 1.60)	(1.60; 1.62)
Missing	**0.23**	**0.23**	**0.10**	**0.11**
	(0.22; 0.24)	(0.23; 0.24)	(0.10; 0.11)	(0.10; 0.11)
Earning points				
0–29	1	1	1	1
30–44	**1.14**	**1.02**	**0.99**	**1.02**
	(1.13; 1.15)	(1.01; 1.03)	(0.98; 0.99)	(1.01; 1.02)
45–54	**0.97**	**0.91**	**0.87**	**0.97**
	(0.96; 0.98)	(0.90; 0.92)	(0.86; 0.99)	(0.95; 0.98)
55+	**0.77**	**0.80**	**0.80**	**0.93**
	(0.76; 0.78)	(0.79; 0.81)	(0.78; 0.82)	(0.91; 0.95)

Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele
Model 1: controlled for age
Model 2: controlled for age and all other individual-level variables
Bold figures indicate values significant at 5% level

Table C.7 Multilevel models: Log likelihood (LL), constant (β_0), and random part (u_{0j}) in the models including age and further inclusion of another individual-level covariate; sample without income restriction; 1998, 2001, 2004 (pooled)

	Males				Females			
	LL	β_0	u_{0j}	%	LL	β_0	u_{0j}	%
Age	−236,991	−3.806	0.070	1.84	−169,640	−4.685	0.070	1.49
+ Occupation	−233,596	−4.007	0.065	1.62	−166,786	−4.802	0.071	1.49
+ Health insurance	−235,639	−4.078	0.062	1.51	−167,889	−5.038	0.066	1.31
+ Retirement age	−226,862	−4.023	0.086	2.14	−156,414	−4.748	0.063	1.32
+ Earning points	−233,249	−3.784	0.080	2.12	−169,343	−4.674	0.069	1.47
+ All indiv.-level cov.	−221,595	−4.255	0.088	2.06	−152,122	−5.150	0.061	1.18

Data source: FDZ-RV SUFRTBNRTWF94-04TDemoKibele