Revealing Patterns –

A Cross-Country Analysis of the

Gender Gap in Mortality

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Abstract

Previous studies identified the middle-aged and elderly Europeans aged 50 and older to be the most decisive age-group when it comes to life-expectancy differences between women and men. This study at hand aims to shed further light on the question why the age-group 50-80 does not only determine the magnitude, but also the dynamic of the gender gap in mortality and furthermore why the importance differs across European countries. This paper utilized data from the 2004 SHARE (Survey on Health, Ageing and Retirement in Europe) baseline wave. First descriptive findings on the impact of several possible predictors of premature mortality on the country-specific differences of the gender gap will be presented. The preliminary results bring out the role of particular health- and health behavior parameters and identified those aspects where further research might take its point of departure.

Introduction

A well-known fact in demography is the variation in the gender gap of mortality across time. In a generalized context of improved survival, female life expectancy has surpassed that of males by an increasing margin during the twentieth century. This rather uniform picture where the gender gap gradually grew apart was to be found in all developed countries. A large number of publications examined this central subject of differential mortality research (see, for example, Stolnitz 1956, Retherford 1975, Lopez 1983, United Nations 1988, Waldron 2000, Vallin 2006, Trovato and Heyden 2006). However, this tendentious growth came to an end during the 1970s/1980s. The gender gap in life expectancy started decreasing ever since and besides the common change towards a closing gap four different patterns arose. Luy and Zielonke (2007)[1] provide a report on these patterns in their paper.

Despite a substantial mortality-decline at older ages within the last 50 years that is well documented (see, for example, Olashansky and Ault 1986, Kannisto 1996, Tuljapurkar et al. 2000), one phenomenon is omnipresent among all countries and calendar years that have been observed by Luy and Zielonke (2007): Apart from the very first year of life, the age group 50 to 80 contributed the biggest share to the overall gender gap in mortality, i.e. this is the age-period where the female superiority is the biggest. *Table 1* provides data on the cross-country variations of the absolute gender difference in life expectancy for selected calendar years and displays (in brackets) the changes in the relative contribution of the age-group 50-80 to the absolute gender gap over the period 1950–2000 for the countries involved in study at hand. Generally speaking for the developed countries, mortality during the first 50 years of life is not only low but shows merely moderate differentials by sex (Buettner 1995, United Nations Secretariat 1988). In contrast, the dominant role of the middle-aged and elderly adults becomes exemplarily apparent throughout the industrialized world. From the mid 1950s onwards this age-group, 50-80, accounts for more than half of the total gender difference in life expectancy at birth. A rapid increase of the relative contribution of this age-group is clear but highlights at the same time fairly clear country-specific differences with respect to the exact magnitude of the contribution of the age-group 50-80. In 1950, the Netherlands for example, started with a share of about 42% of the total gender gap whereas in France premature mortality of middle-aged and elderly men at the same time accounted

[1] The data for this study was obtained from the Human Mortality Database (www.mortality.org). For 26 countries they calculated sex-specific period life tables for single ages (0-99 and 100^+) for every calendar year between 1950 and 2002. The overall life expectancy differences between women and men were decomposed into the absolute and relative contributions of all single age groups.

already for 55%. The share in the Netherlands grew up to a maximum of almost 73% in 1976 and fell hereafter to reach 64% in 2002. The contribution of this age-group in France remained rather constant at about 60% from the early 1960s onwards[2] (*Table 1*). In any country other than Austria it is to see that the age group 50-80 is to be held responsible for the extension as well as the reduction of the gender gap in life expectancy. That means that as long as the excess mortality of the older men grew, the gap increased and vice versa. That adds to the importance of this age group, since it does not only determine the magnitude, but also the dynamic of the gender gap in mortality.

Due to the fact that the relative contribution of a certain part of a population to the absolute gender gap is to a certain extend dependend on the changes of the impact of other members or groups, we add another measure to better assess the role of the age group 50-80. *Figure 1* displays the development of the absolute gender difference of the partial life expectancy[3] over time. Here it gets clear that pretty much all countries under consideration show a narrowing of the gap since the late 1970s/early 1980s. With Austria, where we found an ongoing growth of the share in the absolute gender gap earlier, we see that the gender gap of the partial life expectancy closes since the late 1970s as seen in other countries. The Netherlands show a comparatively high partial life expectancy gap with pronounced up-and-down swings till the late 1960, before it starts its rapid decrease to end up having one of the lowest gender differences in partial life expectancy between the ages 50 and 80. Spain confirms its exceptional position (withing the pattern-scheme) by revealing a late closing of the partial life expectancy difference.

Explanations for the gender gap in mortality underlie a wide range of interacting factors from the impact of behavioral risks and lifestyles to biological or socioeconomic differences[4]. In studying the literature it became clear that the greater weight of explanations lay on the side favoring non-biological approaches. Besides it can be assumed that the biological disadvantage of men that partly determine their excess mortality[5] should count for all countries to the same extend and can therefore be excluded from the array of possible explanation of our research question. Behavioral and environmental hypotheses say that men,

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[2] These results are based on the same calculations described above, but are not presented in such details in the mentioned paper (Luy and Zielonke 2007)

[3] The partial life expectancy can be interpreted as the number of years that a person who reached the 50th birthday can expect to live until the 80th birthday. If mortality risk below age 80 would be zero, this person could expect to live 30 more years. Due to mortality between ages 50 and 80, the true values are below 30 years.

[4] For more detailed reviews see, for example, Luy (2003), Luy and Di Giulio (2005) and Vallin (2006).

[5] Rather recent literature suggests that the effect of biological factors should not exceed 1-2 years in favor of women (Luy 2003).

as a consequence of cultural and social factors, have far more dangerous lifestyles (smoking, heavy drinking, risky sports, and venturous driving styles to mention some) compared to that of women. They are more exposed to certain risk factors associated with their workplace. All this has been implicated in men's excess mortality. These behaviors have been more expected and accepted for males, and cultural and social influences on sex differences in behavior have contributed to men's higher mortality for the external causes of death (Waldron 2003). On the other hand, women take more advantage of progress in the health system; they are more regularly visiting the doctors etc. (Lang et al 1994). The delay of men to adopt this behavior of the new health strategy can explain the increasing life expectancy gap during the 1960s and 1970s and the close thereafter. The health behavior characteristics described above generally count for all women and men in industrialized countries. But how come the total gender gap in life expectancy in general and the share of the age group 50-80 to the gap in particular differ so distinctly across Europe?

In order to get more insights into the explanatory forces behind it is necessary to refer indirectly to underlying driving powers that could be described as *predictors of mortality*. We therefore want to connect gender gap differences with information provided by a more in-depth analysis of possible disease- and health-behavior patterns within this doubtless determining age-period 50 to 80 in Europe. This study addresses gender-differences in mortality caused by gender-differences in morbidity and health to form country-specific health and morbidity pattern. For the purpose of this study many different interacting factors will be included in the analysis to review the issue of cause and effect (Wingard 1984). Hence we want to test known coherences, e.g. behavioral risks like smoking and (lung)cancer (as one of the main causes of male excess mortality), aspects of physical health like physical activity, blood pressure and ischemic heart diseases, in order to define country-specific differences. We also address factors that indirectly explain country differences regarding consultations at general practitioners, preventive medical checkups as well as variables to check for gender specific health care behavior on the part of physicians.

The research reported here was prompted by these unrevealed issues described above. After elaborating the leading causes of death being accounted for the general excess mortality of males aged 50-80 and specifying gender differences in health-specific indicators and gender-specific health behavior in the following two sections, the database and the measures used in the analysis are described.

Causes of Death

"The general consensus is that the steady increase in the sex differential between 1900 and 1970 can be attributed to decreasing mortality rates for diseases affecting only women (i.e. maternal mortality and cancer of the uterus) and increasing mortality rates for diseases affecting principally men (i.e. cancer of the lung and cardiovascular disease). After 1968, cardiovascular mortality decreased for both sexes, but more rapidly for women, thereby contributing to the widening sex differential." (Wingard 1984, p. 440).

Trovato (2005)[6] summarized that sex differences in life expectancy principally arise from sex differences in mortality among older adults, and that chronic and degenerative diseases would account for most of the discrepancy in life expectancy between women and men. He further detected that heart disease, cancers as well as external causes of death (accidents and violence) account for a large portion of the female-male differential in life expectancy at birth since the early 1970s (United Nations Secretariat 1988). Nevertheless, the narrowing of the gender gap after the 1980s were mainly caused by the effects of reduced sex differences in mortality with respect to heart disease, external causes of death and lung cancer, whereas the impact of all cancers has been to widen the sex gap in survival[7] (Trovato 2005, Trovato and Heyen 2006). They found that in general male cancer death rates (primarily prostate cancer) continue to exceed those of females (breast) by an increasing margin. It was also indicated in former studies that a significant part of the reductions in the gender gap in mortality in recent years arose from larger mortality improvements in men compared to women (Trovato 2005).

The current female-male difference in life expectancy at birth is to a large extent also a function of sex differences in smoking because the health effects of prolonged smoking are usually felt decades after the onset of a smoking epidemic (Trovato and Heyen 2006, Preston and Wang 2006). During the later decades of the 19th century lung cancer rates have tended to level off and even decline for men but have been rising for women. Changes in sex differences in lung cancer and other types of mortality associated with smoking (including heart disease, other circulatory conditions and other forms of cancer), are indeed key factors

[6] The author analyzed the narrowing sex differential in life expectancy for Canada and Austria by decomposing the gender gap into the relative contributions of ten major cause-of-death components: heart disease, other diseases of the circulatory system, lung cancer, breast cancer, prostate cancer, all other cancers, cirrhosis of the liver, accidents and violence excluding suicide, suicide, and all other causes of death.

[7] Tovato and Heyen (2006) decomposed the sex differences in life expectancy with respect to four major cause-of-death categories over roughly 3 decades for 7 countries (Canada, France, Germany, Italy, England and Wales, and USA).

underlying observed shifts in the magnitude of the sex differential in longevity[8]. The retrospective character of SHARE will help to identify the actual impact of smoking among the elderly by assessing their smoking history and health status.

Health Indicators

Causes of sex differentials in mortality and morbidity of the population 50^+ are generally not easy to detect or analyze because behavioral and environmental determinants experienced during the whole lifetime have to be factored into the consideration, not just those of old age (Buettner 1995). Besides, morbidity is much more difficult to define and measure than mortality. There is an omnipresent paradox and a rather consistent finding saying that in industrialized countries women's survival advantage continues, but they report more illness than men (Wingard 1984, MacIntyre, Hunt and Sweeting 1996). However, "women appear to have higher rates of conditions that rarely cause death, for example, rheumatoid arthritis; whereas men tend to have more fatal condition, such as coronary heart disease" (Wingard 1984, p. 453). The choice of variables included in our analysis will allow for weighting such discrepancies between very likely fatal and rather harmless (with regard to mortality) ailments.

Self-rated health (hereafter: SRH) is one of the most widely used indicator of health/ ill health in survey research and is well established as a strong and independent predictor of health outcomes including measures of morbidity and mortality (Beardage et al. 2005). What does SRH mean and is it a useful predictor of mortality[9]? Lubitz et.al (2003) confirms that elderly persons in better health had a longer and healthier life expectancy than those in worse health[10]. In contrast to that Sen (2002) argues that the self reported morbidity, the "internal" view of health (i.e. the person's own perception) can sometimes fully run in the opposite direction to life expectancy. Turra et al (2005) remark the risk of inaccuracy of self-reports on health that may derive from the respondent's tendency to misconceive the own health, poor recall of health information from the past, or objection to reveal health problems to the

[8] Mucha et al. (2006) found that the disease risk (including pulmonary and cardiovascular diseases and stroke among others) associated with smoking is higher among females compared to males.

[9] Cross-country differences in health and morbidity history must be interpreted with caution, since comparisons of e.g. self-reported health need to take into account cultural and linguistic differences. SRH-categories are verbal representations of different health states, which may not mean the same thing to all respondents. There may also be differences in how people from different countries evaluate their health, i.e. how they take different issues into their global evaluation (Benyamini and Idler 1999, Sen 2002).

[10] The authors classified the health status on the basis of responses to questions about activities used as measures of physical functioning ('Nagi limitation'), instrumental activities of daily living and activities of daily living. In a separate analysis they also used SRH.

interviewer. When it comes to the pathways linking gender and SRH, most studies showed no or weak relationship between these two after education, race, employment and social network were controlled for (Bardage et al. 2005, McDonough and Walters 2001). Other researchers already detected that sex differences in SRH become smaller at older ages (Case and Paxon 2005) or even that the female disadvantage in self-rated health status vanishes by age 65 (ibid). It is anyway confirmed that the sex differences in SRH can entirely be explained by sex differences in the distribution of conditions and does not rest on systematic differences in how women and men report their health. Many papers dealt with the research question of how the relation between SHR and mortality differs between the sexes (Deeg and Kriegsman 2003, Idler 2003, Case and Paxon 2005). It is proven that there is a clearer risk of mortality for males than for females when reporting poorest health, respectively (Benyamini and Idler 1999). Deeg and Kriegsman (2003) on the other side conclude in their study that SHR is a predictor of mortality on men, not in women. In principle there are many different manifestations of health. Turra et al. (2005) evaluated a broad array of them ("biological markers of chronic disease"), including body mass index (hereafter: BMI, a measure of obesity as well as frailty), blood pressure, cholesterol, hemoglobin level and others, to examine their association with mortality at older ages[11]. Their results show that biomarkers provide strong independent explanatory power.

It seems undoubted that there is a direct positive effect of education on health (Cutler, Deaton and Llereas-Muney 2006). More educated people are generally less likely to smoke, whereas this difference has increased over time. It is known that smoking is a driving force in differences in lung cancer and cardiovascular disease mortality across educational groups and between women and men. The same logic holds for drinking, eating habits, use of preventive care, and other health behavior characteristics.

In summary it can be ascertained that given an equal share of biological factors in each country under observation the country-specific differences of the remaining life expectancy differences needs to be explainable by behavioral and environmental factors.

Research Question

The purpose of this study is to examine if the cross-country discrepancies described above regarding differences in the relative impact of the age-group 50-80 on the absolute gender

[11] This set of biological markers reflects several interrelated physiological processes – cardiovascular, metabolic, nervous system among others – in the need to obtain objective measures of health status

gap and the partial life expectancy (50-80) is to be reflected in gender specific forms of health behavior and morbidity in our data of the middle-aged and elderly Europeans. The aim is to compare morbidity structures that are known to lead to prematurely mortality and to reveal to which extend they differ across the countries under consideration. By checking certain variables we want to spot their concrete input within and shed light on to the factors to be hold responsible for the gender gap differences in mortality across Europe.

Data and Method

After detecting the country-patterns of the gender gap in mortality we aim to understand what might be hidden behind. SHARE (Survey on Health, Ageing and Retirement in Europe)[12] provides data on the individual life circumstances of a total of 22,777 (non-institutionalized) individuals aged 50 and older[13] in 15,537 households in 10 European countries: Austria, Denmark, France, Germany, Greece[14], Italy, Netherlands, Spain, Sweden, and Switzerland. Its general aim is to understand ageing and how it affects individuals in the diverse cultural setting of Europe and it has made great efforts to deliver truly comparable data. SHARE provides modules on health, health behavior, morbidity, and basic demographic items. SHARE features information on the causes of morbidity and ill health at rather early stages due to the age-distribution of the sample. SHARE was created to follow the model of the American Health and Retirement Survey (HRS) as well as the English Longitudinal Study on Ageing (ELSA). Such a survey presents the single opportunity to assess the underlying cross-national differences in health and morbidity. Measuring health along with economic and social circumstances is one of the big strength of SHARE.

After excluding persons below age 50 and above age 80 and Greece a total number of 17,919 cases remain. See *Table 2* for details on the age distribution of the SHARE data broken down by gender and smaller age-groups.

In a first step descriptive analysis will be applied to gain a fine grasp on the determining variables in the data. Hence relative frequencies will be calculated for each sex and country under consideration.

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[12] SHARE has an open access policy and data are freely available on the project's website: http://www.share-project.org. It is a longitudinal study. We used data from the first baseline wave which was collected between April and October 2004.
[13] Since spouses of persons aged 50 and older were also interviewed, some persons in the dataset are younger than 50
[14] Greece was excluded from this study since it was not part of the analysis previously carried out with data from the Human Mortality Database.

Results

The relative frequencies of several variables that are know to be predictors of mortality as mentioned above (following Turra et al. 2005) are presented in *Table 3* for all 9 countries under consideration and for women and men, repectively.

Reports on high cholesterol and blood pressure embody major risk factors for cardiovascular disease (hereafter: CVD) and CVD-related mortality as well as the risk for stroke, and total mortality (Turra et al. 2005) for the person concerned. It is expected that the data is clear cut in terms of gender disparity regarding these variables as mortality of CVD-related causes is known to lead the list of reasons for male excess mortality in the industrialized world (Trovato and Heyen 2005). However, the results shown in *Table 3* confirm that clearly only for the case of heart attack. Men report approximately twice as often as women to have ever had a heart attack. The values are closer to each other in Spain though. Values for high blood cholesterol and high blood pressure indicate somehow narrower percentage values and even reverse results. Spain is an exception once again: the Spanish data is implying that - contrary to the assumption - women report more often to have high blood pressure (37.8% vs. 28.1%) as well as high blood cholesterol (25.4% vs. 23.3%) compared to men. A similar relationship is also displayed for France and Italy.

In all considered countries men have higher percentage values when it comes to diabetes. This variable holds on (European) average two percentage points more for men compared to women. Obesity is considered as one of the major causes that lead to diabetes at old ages.

As mentioned earlier male cancer death rates (primarily prostate cancer) continue to exceed those of females (breast) by an increasing margin (Trovato 2005, Trovato and Heyen 2006). Our results confirm the contrary: Women reported twice as often to have (or have had) breast cancer as men reported to have (of have had) prostate cancer allover the countries investigated.

The BMI is the most widely used biomarker in social science research and its extreme values are associated with acute and chronic diseases and subsequent mortality (Turra et al. 2005). Our results show that the percentage of women and men belonging to the obesity-category are pretty much the same with the exception of Spain, where 6% more women are defined as obese. Within the overweight-category (BMI between 25 and 30), men clearly have the lead. The overall mean of the SHARE-data shows an almost 15% difference in favor of men.

Discussion

The intention of this paper was to see if cross-country discrepancies regarding differences in the relative impact of the age-group 50-80 on the absolute gender gap and the partial life expectancy (50-80) are to be detected in gender specific forms of health behavior and morbidity in our data of the middle-aged and elderly Europeans. The aim was to compare morbidity structures that are known to lead to prematurely mortality and to reveal to which extend they differ across the countries under consideration. By checking certain variables we wanted to spot their concrete input within and shed light on to the factors to be hold responsible for the gender gap differences in mortality across Europe. By linking data on health behavior, physical health and behavioral risks to data on life expectancy differences between European women and men, we tried to gain first insights into their relationship to each other. We know from previous research that the gender gap of life expectancy is mainly determined by the age group 50 to 80, what means that our analysis focussed on that age range. Our findings on several health variables provide a first overview of their impact on gender specific mortality differences.

The rather exceptional role of Spain within the categorization of patterns according to the absolute gender gap as well as the gender difference in the partial life expectancy (50-80) could mainly be attributable to the unexpected discriptive findings in *Table 3*. The question is why women with the conditions mentioned in the previous chapter still outlive men to such an extent and with such a dynamic as described for Spain. A possible answer could be that Spanish women simply tend to overreport and men tend to underreport medical conditions, respectively or that men report them only when they are more severe or at more advanced-stages of these conditions (Case and Paxon 2005).

One shortcoming of this study is the fact that it is utilizing longitudinal data that is offering only one wave so far. Further waves of SHARE will definitely deepen the insights we can gain, since also cases of death will be registered that could be directly implicated with health behavior and morbidity structures. The question raised above regarding Spain could be answered by looking at samples of individuals who died from specific causes and examining whether these individididuals reported conditions that were associated with those causes of death. SHARE, among other health surveys, has to acquiesce the reproach to carry a recruitment bias, i.e. that rather healthy persons tend to answer the questions and to participate in a survey. It is possible that this is exemplary obvious in the case of Spain, where men seem to be much healthier than they are supposed to compared to their female counterparts.

The preliminary results bring out the role of particular health- and health behavior parameters and identified those aspects where further research might take its point of departure. Further research will broaden the array of explanatory variables like SRH, alcohol consumption, smoking among others and will use regression analysis (dependend variable = gender differences in mortality) tailored to the coherences presumed given the first discriptive results. Further investigation is also needed to gain a more thorough review on possible causalities to reveal direction of impact and causes of country-specific differences.

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<u>Table 1:</u> Female-Male Difference in the Life-Expectancy at Birth, and the Relative Contribution of the Age-Group 50-80, selected Calendar Years

	Calendar years										
	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000
Pattern 1:											
Austria	5.07 (50.1)	5.79 (54.2)	6.51 (59.3)	6.38 (62.5)	6.91 (59.7)	7.04 (59.3)	7.09 (60.7)	7.00 (61.8)	6.68 (65.1)	6.70 (64.1)	6.06 (66.6)
Denmark	2.42 (40.0)	3.06 (54.2)	3.56 (58.9)	4.45 (65.2)	5.05 (64.1)	5.73 (66.5)	6.01 (68.7)	5.94 (65.4)	5.71 (61.7)	5.11 (60.7)	4.68 (56.9)
Germany West	3.92 (40.4)	4.64 (53.4)	5.37 (60.7)	5.83 (64.1)	6.32 (62.8)	6.59 (63.7)	6.75 (65.6)	6.57 (68.3)	6.36 (66.7)	6.28 (65.9)	5.80 (66.0)
Netherlands	2.27 (42.1)	3.14 (56.0)	3.86 (62.5)	5.02 (67.6)	5.69 (71.0)	6.26 (72.8)	6.70 (71.4)	6.59 (70.9)	6.30 (69.3)	5.78 (67.6)	5.09 (65.9)
Sweden	2.61 (46.0)	3.09 (54.0)	3.64 (68.6)	4.35 (63.2)	4.97 (63.1)	5.77 (63.5)	6.07 (64.8)	5.91 (66.4)	5.58 (64.0)	5.27 (61.7)	4.64 (58.6)
Pattern 2:											
France	5.75 (54.9)	6.30 (58.8)	6.59 (63.2)	7.25 (64.0)	7.43 (62.7)	7.85 (63.6)	8.25 (63.1)	8.21 (63.4)	8.24 (60.1)	8.05 (59.9)	7.51 (61.0)
Italy	3.42 (48.4)	4.27 (53.6)	5.01 (58.6)	5.60 (60.5)	5.84 (62.8)	6.36 (66.3)	6.75 (67.6)	6.53 (68.6)	6.64 (64.4)	6.56 (62.2)	5.91 (63.5)
Switzerland	4.44 (54.6)	4.64 (57.2)	5.46 (58.7)	5.60 (62.8)	6.13 (62.3)	6.51 (64.1)	6.62 (64.1)	6.67 (65.2)	6.78 (60.6)	6.41 (59.7)	5.67 (60.2)
Pattern 3:											
Spain	4.87 (51.7)	4.57 (54.6)	4.98 (56.3)	5.39 (57.6)	5.55 (59.4)	5.85 (63.4)	6.21 (63.6)	6.60 (64.3)	7.18 (60.5)	7.34 (60.6)	6.90 (63.8)

Note: The fourth pattern is missing here since it characterizes the countries of the former Soviet Union, which are not part of the analyzed regions within the SHARE survey.

Sources: Own calculations with data from the Human Mortality Database. Exception: West Germany for the years 1950-1955. Own calculations with data from the Federal Statistical Office (Statistisches Bundesamt 2006)

Table 2: Age Distribution of the SHARE-Data, by Sex

Country	All	50-54		55-59		60-64		64-69		70-74		75-79	
		women	men	women	men	women	men	women	men	women	men	women	men
Austria	**1,738**	179	163	195	140	179	152	178	141	162	112	84	53
Denmark	**1,428**	198	204	166	146	101	97	95	93	116	87	68	57
France	**1,516**	212	214	174	126	92	95	123	96	138	110	76	60
Germany	**2,733**	375	296	239	233	239	222	275	279	184	185	109	97
Netherlands	**2,610**	388	295	331	296	193	186	186	202	189	171	90	83
Italy	**2,316**	257	178	284	225	227	192	223	191	197	190	75	77
Spain	**2,058**	275	176	207	152	151	123	188	161	226	186	120	93
Sweden	**2,682**	334	250	334	291	207	184	233	216	119	199	119	122
Switzerland	**838**	112	97	94	87	58	60	66	59	64	71	42	28
Total	**17,919**	**2,330**	**1,873**	**2,024**	**1,696**	**1,447**	**1,311**	**1,567**	**1,438**	**1,469**	**1,311**	**783**	**676**

Source: Share Data, release 1

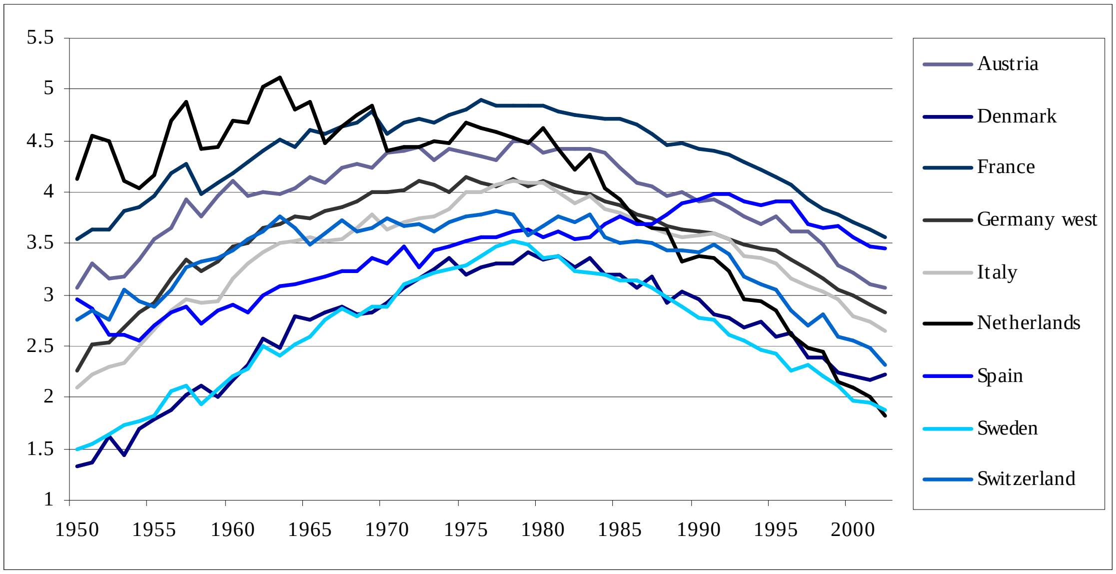
Table 3: Country-Specific Relative Frequencies (percentage) of Selected Predictors of Mortality among Europeans aged 50-80

Country	Heart problems		High blood pressure		High blood cholesterol		Diabetes		Lung cancer		Breast cancer	Prostate cancer	BMI Men			BMI Women		
	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	1	2	3	1	2	3
Austria	6.3	11.6	33.9	27.5	16.8	18.1	7.2	10.4	0.2	0.3	2.2	0.3	29.3	52.3	18.3	43.3	35.6	21.1
Denmark	6.2	8.9	28.9	30.0	14.2	17.7	6.2	8.2	0.4	0.4	4.7	0.9	38.7	47.1	14.4	53.3	32.6	14.1
France	7.9	15.4	32.4	24.7	25.5	23.8	7.7	11.0	0.1	0.0	3.8	2.1	37.1	47.7	15.1	53.7	30.0	16.3
Germany	7.3	14.2	35.2	35.1	17.6	18.7	10.1	11.0	0.2	0.3	2.8	1.8	29.8	52.9	17.3	42.8	39.4	17.9
Netherlands	7.2	14.4	26.2	23.3	13.7	17.7	7.6	8.2	0.1	0.7	2.5	1.1	37.1	49.3	13.6	45.9	37.1	17.0
Italy	7.2	11.8	37.3	35.1	23.4	18.8	10.4	12.8	0.0	0.3	3.0	0.9	31.1	52.4	16.5	42.3	37.9	19.8
Spain	9.0	12.5	37.8	28.1	25.4	23.3	13.8	16.2	0.0	0.3	1.2	1.2	26.4	52.6	20.9	31.6	41.5	26.9
Sweden	9.8	17.7	28.3	28.7	16.5	18.2	6.7	10.0	0.1	0.0	3.6	2.4	38.6	47.7	13.7	49.8	35.7	14.5
Switzerland	4.6	8.9	27.8	30.1	10.1	16.2	4.1	7.5	0.0	0.2	2.1	3.0	39.6	46.9	13.5	57.3	29.2	13.4
Total	**7.6**	**13.4**	**32.0**	**29.4**	**18.6**	**19.2**	**8.6**	**10.7**	**0.1**	**0.3**	**2.9**	**1.5**	**33.8**	**50.2**	**15.9**	**45.4**	**36.4**	**18.2**

Note: Breast cancer for men is not displayed in this table due to very little case numbers. Prostate cancer is only displayed for men. BMI (Body Mass Index) has the following categories: 1 = underweight and normal (below 25), 2 = overweight (25 – 30), 3 = obese (30 and above). See the appendix for further information about the variables. All results refer to N (females) = 9,620 and N (males) = 8,299, respectively

Source: Share Data, release 1

<u>Figure 1:</u> Female-Male Difference in the Partial Life Expectancy between age 50 and 80, 1950-2002



Sources: Own calculations with data from the Human Mortality Database. Exception: West Germany for the years 1950-1955.: own calculations with data from the Federal Statistical Office (Statistisches Bundesamt 2006)

Appendix : Definition of the Variables

The study at hand factors different behavior parameter and socio-demographic characteristics into the analysis. They will shortly be described here.

Biomarkers mentioned above included in the model are specified as dummy variables (displayed in Table3 if selected):

Heart Attack/other problems: "Has a doctor ever told you that you had heart attack (including myocardial infarction, coronary thrombosis or any other heart problem including congestive heart failure)?"

High Blood Pressure: "Has a doctor ever told you that you had high blood pressure (or hypertension)?"

High Blood Cholesterol: "Has a doctor ever told you that you had high blood Cholesterol?"

Diabetes: "Has a doctor ever told you that you had Diabetes?"

Cancer

("In which organ or parts of the body have you or have you had cancer?", dummy variable)

Lung Cancer
Breast Cancer
Prostate Cancer

BMI

Variable of Body Mass Index (BMI) generated from the questions regarding weight ("Approximately how much do you weigh?") and height ("How tall are you?") of each respondent. Results were categorized as follows:

BMI = "1" (underweight, normal) if below 25
BMI = "2" (overweight) if between 25 and 29.9
BMI = "3" (obese) if 30 and above