ABOUT MORTALITY DATA FOR WEST GERMANY

by Rembrandt Scholz October 27, 2005
Revised by Dmitri Jdanov Last updated: February 14, 2007

GENERAL

West Germany (Federal Republic of Germany or FRG) as part of Germany consists of the following *Laender* (regions): Baden-Wuerttemberg, Bayern, Bremen, Hamburg, Hessen, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, and Schleswig-Holstein, as well as West Berlin. Population statistics were created for some parts of West Germany based on the West German censuses of 1946, 1950, 1961, 1970 and 1987. Births, deaths, and migration statistics were produced and published for all parts of West Germany.

In 1950, the *Statistische Bundesamt in Wiesbaden* (Federal Statistical Office) was established. This office provides demographic statistics for the federal territory (West Germany), and since 1990, has also provided statistics for East Germany.

Since 2001, the division of the Berlin statistics into the eastern and western part is no longer available from the Statistical Office of Berlin (Statistisches Landesamt Berlin). Therefore, the Max Planck Institute for Demographic Research (MPIDR) began a scientific project to split the Berlin demographic data for the years 2001-2004 based on information from the Population Register of Berlin (see Appendix A).

TERRITORIAL COVERAGE

The territory covered by the Federal Republic of Germany varied over time, the Population statistics presented here for West Germany include all above-mentioned regions.

DEATH COUNT DATA

The death statistics include deaths of all persons who were residents of West Germany. Stillbirths are not included in these statistics. With regard to the completeness of the death statistics, one should note that deaths are generally registered at the place of occurrence. Therefore, certain criteria of inclusion and exclusion have to be applied in order to produce statistics by place of residence from statistics by place of occurrence. For instance, a person who was resident of the federal territory but died abroad was also included in the federal statistics. In Germany, age reporting has a high reliability.

POPULATION COUNT DATA

The end-of-the year population estimates represent the population having their residence in West Germany. The estimates are derived by modifying the results of the last census according to the results of the vital statistics and the migration statistics.

BIRTH COUNT DATA

The birth statistics include live births to all mothers who had their residence in West Germany. The definition of a live birth changed in 1958 (Statistisches Bundesamt, 1993, p. 14).

- Since 1958, live births include all births where "there was respiration, pulsation of the umbilical cord, or a heartbeat of the child after the complete expulsion or extraction from its mother."
- Before 1958, a live birth was defined as a birth where: "there was respiration after complete expulsion or extraction".

With regard to the completeness of the birth statistics, one should again note that births are generally registered in the area of occurrence. Therefore, certain criteria of inclusion and exclusion have to be applied in order to produce statistics by place of residence from statistics by place of occurrence.

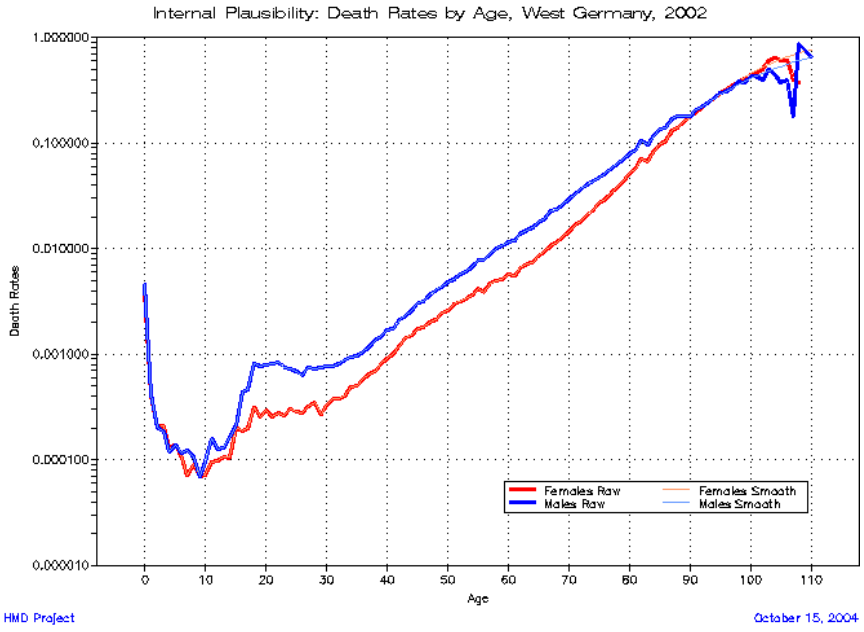
DATA QUALITY ISSUES

Quality of data on population counts

As noted in the *General Comments* for Germany as a whole, there is evidence that the official population estimates for West German males at older ages are overestimated, especially as time since the last census increases (for details see Appendix 2 of the *General Comments* for Germany).

In general, we would expect mortality rates to be higher for males than females, and for most ages, that is the case. Yet, rates calculated using the official population estimates show that at ages 90+ West German males presented rates that were as low, and in some cases lower, than those for female (for example, see Figure 1).

Figure 1



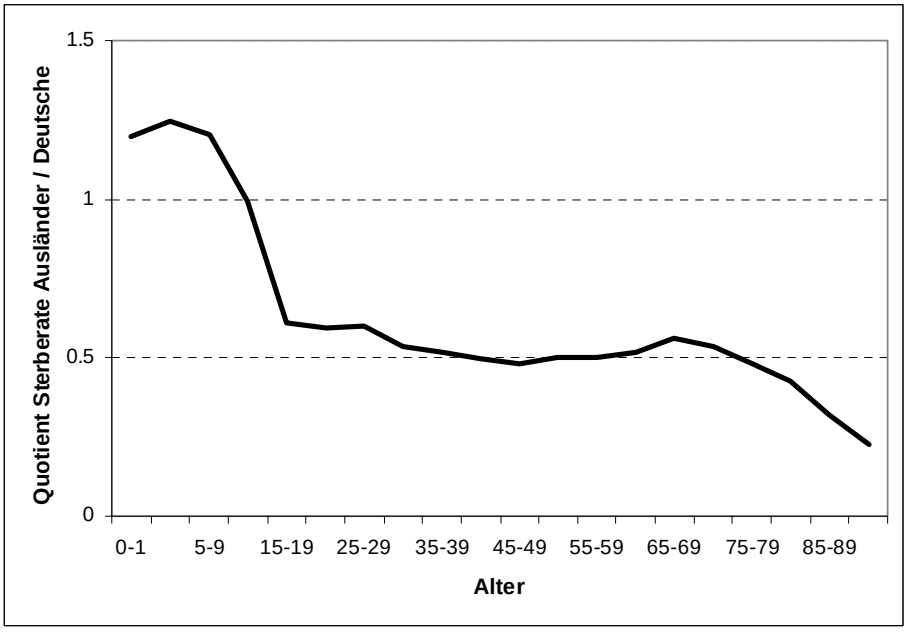
Over-reporting or misreporting of vital events used for population statistics

The overestimation of population size may stem from over-reporting or misreporting of vital events. In particular, it is important to consider the reliability of migration data. Since the last census in 1987, there has been substantial in-migration (15 million) and out-migration (12 million), but also considerable migration between and within the Laender. If migration is over- or under-reported, it can affect the reliability of population estimates.

Figure 4 shows the ratio of mortality rates for foreigners to those of West Germans during 1980-93. This ratio suggests much lower mortality for the former compared with the latter, especially at older ages (Graph 4). There is no plausible explanation for this large mortality difference. One sensible explanation is that the size of the foreign population is overestimated.

By law, *Statistische Bundesamt* is only allowed to use registered deaths, births, and migration to account for population size; unregistered migration cannot be not taken into account. Therefore, unregistered out-migration of foreigners can result in overestimation of population size. At younger ages it is less of a problem because these missing foreigners form a small proportion of the population, but at older ages it creates a large bias because they represent a substantial proportion of the "surviving" population.

Figure 2. Relative Mortality Rate (Foreigners/Germans) by age, 1980-1993, West Germany



See Appendix 2 of the General Comments file for Germany as a whole, for details regarding correction for this error.

ACKNOWLEDGEMENTS

We would like to thank: Walter Becker, Jutta Gebhardt, Hans-Peter Bosse, and Dieter Emmerling at Federal Statistical Office Wiesbaden; and Anita Depner, Fr. Koehn, Viola Kraemer, Rolf Paletta, R. Hopf-Engelk, and Monika Zornik at the Statistical Office Berlin for their kind help and assistance in compiling the German data. We express our special gratitude to Bettina Sommer (Federal Statistical Office) and Juergen Paffhausen (Statistical Office Berlin) for very useful comments.

REFERENCES

Statistisches Bundesamt,ed. (1993). *Bevoelkerungsstatistische UEbersichten 1946 bis 1989*. Wiesbaden, Germany: Arbeitsunterlage. (Sonderreihe mit Beitraegen fuer das Gebiet der ehemaligen DDR, Heft 3)

Scholz, R.D. Statement about data needs for mortality analysis in Germany (unpublished); 1. Konferenz fuer Sozial- und Wirtschaftsdaten13.1.-14.1.2003 in Wiesbaden.

Jdanov, D.A.; Scholz, R.D.; Shkolnikov, V.M. (2005). Official population statistics and the Human Mortality Database estimates of populations aged 80+ in Germany and nine other European countries .MPIDR Working Paper WP-2005-010. Rostock: MPIDR.

APPENDIX 1:
DESCRIPTION OF DATA USED FOR LEXIS DATABASE

DEATHS

Period	Type of Data	Age Grouping	Comments	RefCode(s)†
1956-1963	Annual number of deaths to residents by age and birth cohort (Lexis triangles)	0, 1, 2, 3, … …102+		1
1964-1968	Annual number of deaths to residents by age and birth cohort (Lexis triangles)	0, 1, 2, 3, … …106+		2
1969-2000	Annual number of deaths to residents by age and birth cohort (Lexis triangles)	0, 1, 2, 3, … maximum age attained		3, 4, 5, 6, 7, 14
2001-2004	Annual number of deaths to residents by age and birth cohort (Lexis triangles)	0, 1, 2, 3, ….maximum age attained	For the period 2001-2004, the data were reconstructed based on the data by Laender (East / West) and splitting Berlin in the two parts, East and West.	15, 16, 24, 25

† The reference code is used in the raw data files (Input Database) to link data with sources.

POPULATION

Period	Type of Data	Age Grouping	Comments	RefCode(s)†
1990-2000	Annual population estimates (as of December 31st) by age	0, 1, 2, 3, ...95+		9, 10, 11, 17
2001	Annual population estimates (as of December 31st) by age	0, 1, 2, 3, ….90+	Data were reconstructed based on the data by Laender (East / West) and splitting Berlin in the two parts, East and West	18, 19
2002-2005	Annual population estimates (as of December 31st) by age	0, 1, 2, 3, …90+	For the period 2002-2005, the data were reconstructed based on the data by Laender (East / West) and splitting Berlin in the two parts, East and West	19, 20, 26, 27

BIRTHS

Type of data: Annual number of live births by sex

Period covered: 1990-2004

RefCode(s): 12, 13, 20, 21, 22, 23

APPENDIX 2

RECONSTRUCTION OF POPULATION AND DEATH COUNTS DATA FOR EAST- AND WEST-BERLIN

After the unification of East- and West-Germany in 1990, both parts of Berlin were also unified. Between 1949 and 1990, Berlin consisted of two parts: West Berlin with 12 districts and East Berlin with 11 districts. After the "district reform" on January 1, 2001, Berlin was divided into 12 new districts, and a separation into West and East districts was no longer possible (see Table 1 to compare the old and the new districts of Berlin).

To extend the time series for East and West Germany in the Human Mortality Database, we must have separate datasets for the two parts of Germany and consequently, for East and West Berlin. The MPIDR created separated datasets for East and West Berlin with the help of official data from the statistical office and the registry office (*Melderegister*) in Berlin.
The data from the *Melderegister* are still broken down according to the old district structure, which was in use before the change in 2001, as well as by sex, age, and Lexis-triangle. For that reason, the population, death, and birth counts could be separated into eastern and western counts by sex, age, and Lexis-triangle . Although the total counts from the *Melderegister* and the statistical office should be identical, we found some differences between the two sources. Therefore, in order to be consistent with the counts from the statistical office, for each year, sex and age combination, we multiplied the relative distribution (East versus West) based on the *Melderegister* by the counts from official statistics of Berlin.

In cases where there was an odd number of deaths (births, or population) for a given sex and age, the extra count leftover after dividing evenly was alternately assigned to the East and to the West of Berlin.
In cases where the regional statistical office reported at least one death, but the *Melderegister* showed no death for a given sex and age, we disaggregated the former data into eastern districts, western districts and mixed districts death counts. In most cases, we could then identify the region (east or west) to which the death should be allocated.

Table 1: Old and new districts of Berlin

	Berlin districts (new) *Since 1. 01. 2001*	*Berlin* districts (old) *Until 31.12. 2000*	
Nr.	**Name**	**Region**	**Name**
1.	Mitte	East West West	Mitte (01) Tiergarten (02) Wedding (03)
2.	Friedrichshain-Kreuzberg	East West	Friedrichshain (05) Kreuzberg (06)
3.	Pankow	East East East	Prenzlauer Berg (04) Weißensee (18) Pankow (19)
4.	Charlottenburg-Wilmersdorf	West West	Charlottenburg (07) Wilmersdorf (09)
5.	Spandau	West	Spandau (08)
6.	Steglitz-Zehlendorf	West West	Zehlendorf (10) Steglitz (12)
7.	Tempelhof-Schoeneberg	West West	Schoeneberg (11) Tempelhof (13)
8.	Neukoelln	West	Neukoelln (14)
9.	Treptow-Koepenick	East East	Treptow (15) Koepenick (16)
10.	Marzahn-Hellersdorf	East East	Marzahn (21) Hellersdorf (23)
11.	Lichtenberg-Hohenschoenhausen	East East	Lichtenberg (17) Hohenschoenhausen (22)
12.	Reinickendorf	West	Reinickendorf (20)

Source: Regional statistical office, Berlin