Estimating the Migrant Survival Advantage From Parental Orphanhood of Second Generation Migrants

Marc Luy
University of Rostock
Institute for Sociology and Demography
Ulmenstrasse 69, 18057 Rostock, Germany
Phone: +49-381-498-4344
Fax: +49-381-498-4345 (fax)
E-Mail: email@marc-luy.de

Extended Abstract

Description of the topic to be studied

It is known from several studies that migrants are healthier and thus show lower mortality than the immobile population what was described for various countries and ethnic groups for internal as well as for international migrants (e.g. Feinleib et al. 1981; Young 1986; Shai and Rosenwaike 1987; Tsugane et al. 1989; Nair et al. 1990; Valkonen et al. 1992; Balarajan and Raleigh 1997; Kington et al. 1998; Razum et al. 1998a, 1998b; Singh and Siahpush 2001; Palloni and Arias, 2004).[1] Generally, this phenomenon is explained by a special selection effect which may influence mortality and morbidity rates. This selective migration is expected to operate in two directions entailing the movement of a "select group" of healthy or unhealthy migrants (Shai and Rosenwaike 1987; McKay et al. 2003; Palloni and Arias 2003, 2004). The movement of healthier individuals is known as the so-called "healthy migrant phenomenon" (Sharma et al. 1990, Kington et al. 1998). On the other hand, it seems that sick

[1] One of the few known exceptions are Scottish and Irish immigrants to England and Wales exhibiting higher mortality rates than the general population of England and Wales (Adelstein et al. 1986, Raftery et al. 1990, Wild and McKeigue 1997).

migrants are involved in return migration, for example, to be nearer to family or care-giving institutions (Brimblecombe et al. 2000, Lanska and Peterson 1995, Razum et al. 1998b). The latter phenomenon is also known as "salmon bias" (Palloni and Arias 2003).[2]

Beside this, especially in internal migration studies it is apparent that some migrant groups additionally benefit from a protective effect in terms of retention of a lower incidence of particular diseases, as was shown above all for Italy (Buiatti et al. 1985, Vigotti et al. 1988, Ceppi et al. 1995, Fascioli et al. 1995, Barbone et al. 1996) but also for other countries (Mancuso 1977, Coggon et al. 1990, Greenberg and Schneider 1995). Some of these effects may be due to genetic factors or the retention of certain dietary practices, since for instance associations have been found between breast cancer and body size, and daily intake of fat, in particular saturated fat, and alcohol consumption (Toniolo et al. 1989).

Most studies on mortality differences between migrants and the non-migrants are based on individual data measuring the relative mortality risk of the two population groups and there is no doubt that the healthy migrant effect is apparent on the micro level. It is however unclear to which extent this phenomenon contributes to mortality differences on the macro level. In most cases official population statistics is not useful in order to answer this question since they are biased by a significant data artifact. Life tables for the foreign and native population calculated from official German population statistics elucidate this bias impressively. Table 1 contains the corresponding life expectancy at birth for the German and the foreign population as well as the difference between them for selected years between 1980 and 2004. For both sexes, life expectancy of the foreign population exceeds those of the German population by more than 10 years. Only in 1987 (bold printed in table 1), the year of (West) Germany's last census and thus correction of population data, the difference is about 6

[2] It should be stressed that the lower mortality of migrants is not only affected by physical condition but also by socioeconomic status (Wei et al. 1996, Harding and Maxwell 1998, Van Steenbergen et al. 1999). However, this doesn't hold for all ethnic migrant groups, what provides even more support to the "healthy migrant hypothesis" (Abraido-Lanza et al. 1983, King and Locke 1987).

years in favor of the foreign population. The more years pass since 1987 the higher becomes the difference, being 15.9 years among females and even 20.4 years among males according to the most recent data for 2004. The unrealistic foreign survival advantage according to official population statistics increases significantly with age. For life expectancy at age 80, for instance, the foreign survival advantage is 17.6 years among females and 32.9 years among men (data not shown in table 1).

These numbers show that the data bias caused by unregistered emigration of former immigrants prevents the use of official population data for estimating the healthy migrant effect in terms of demographic macro measures like life expectancy. In order to analyze the existence and the possible extent of mortality differences between migrants and non-migrants this study follows the approach of indirect mortality estimation by using survey data as it is done in developing countries where (trustworthy) population data does not exist. Test simulations, analysis of their inner consistency and comparisons to independent data have shown that indirect techniques provide correct and surprisingly robust results in most cases (Arthur and Stoto 1983). This paper shows that these methods can help even in developed countries when direct techniques cannot be used or when their application is limited by severe data biases.

Data and research methods

In order to examine the healthy migrant phenomenon the "Integration-Survey" is used that was carried in 2000 by the Federal Institute of Population Research in Germany. For the research project "determinants and indicators of integration and segregation of the foreign population in Germany" 2,465 interviews have been done with children of Turkish (1,241 interviewed persons) and Italian (1,224 interviewed persons) immigrants (the so-called "second generation migrants") of ages 18 to 30. Additionally, the survey includes a control group of 1,220 German persons with no migration background of the same age range. The question-

naire contains several items on life conditions, behavior, preferences, and family background including questions on the survival of parents and their year of birth (the questionnaire and a description of the data can be found in Mammey and Sattig 2002).

The estimation of adult mortality from information on the survival of the parents with the "orphanhood method" belongs to the standard tools for obtaining demographic information for developing countries (for overviews see Hill et al. 1983 or Hill et al. 2005). Brass and Hill (1973) proposed methods for estimating life table survivorship ratios from proportions of respondents of successive five-year age groups with mother or father alive. In the subsequent years the methods have been improved by several scholars (Hill and Trussell 1977; Timæus 1991a, 1991b, 1992; Timæus and Nunn 1997). The basic idea is that the age group of respondents represents the survival time of the mother (or father). Consequently, the proportion of respondents of a given age group with mother (or father) alive approximates a survivorship ratio from an average age of childbirth to that age plus the age of the respondents. The available methods model this relation using different patterns of fertility, mortality and age distribution to allow the conversion of a proportion with parent surviving into a life table survivorship ratio, controlling for the actual pattern of childbearing. Moreover, Brass and Bamgboye (1981) developed a general method for estimating the reference date of estimates derived from data on survival of parents.

The Integration-Survey provides all information necessary to apply the orphanhood method with almost maximum possibilities, since in addition to the age of respondents and the information of the survival of their fathers and mothers the birth year of the parents is known as well. Moreover, since official life tables from Turkey, Italy, and Germany are available it is not necessary to estimate the basic mortality pattern by choosing a certain model life table arbitrary. For estimating the mortality level (with corresponding estimates on life expectancy etc.) of male and female immigrants only the information of those respondents is used, whose parents were born outside Germany. In some cases these are both parents, in others

only the father or the mother, respectively. Thus, the case numbers differ between mothers and fathers included in the analysis. The big advantage of this study is that the results enable a quantitative estimation of the healthy migrant phenomenon without the enormous bias caused by the data problems as shown in table 1. Finally, bootstrap confidence intervals will show the statistical significance of the found mortality differences between immigrants to Germany and the native German population.

Preliminary and further expected findings

Tables 2 and 3 show first preliminary results from analyzing paternal mortality of second generation migrants included in the Integration-Survey. Here, the percentages of Turkish, Italian and German respondents with mother respective father died are shown for all ages 18-30 and both sexes together. Although these data is not affected by the bias of unregistered emigration the lower mortality of migrants becomes apparent. Among respondents with mothers born in Germany 8.72 percent reported that their mother has already died, while the corresponding percentage among women with mothers that immigrated to Germany from Turkey and Italy is only 2.98 and 4.27 percent respectively. Regarding the survival of fathers the corresponding percentages are 11.55 for respondents with German origin, 6.54 for respondents with Turkish origin, and 6.97 for respondents with Italian origin. Although these results are not yet standardized for the age of respondents and the age of their parents there are distinct survival differences between migrants and non-migrants, especially since the age group of respondents is limited and the ages at childbirth of their parents are relatively similar (see tables 2 and 3).

The preliminary results shown in tables 2 and 3 indicate that the data of the Integration-Survey seems trustworthy for indirect mortality estimation. For instance, mortality is higher for males than for females, as well as the average age at childbirth. Furthermore, among respondents' mothers the average age at childbirth is youngest among the Turkish and

highest among the German sample as should be expected. In the next steps, the analyses have to be done separately by sex and age of respondents in order to apply the orphanhood method for deeper and more precise mortality analysis. These steps will enable to transfer the percentages of respondents with mother respective father alive into differences between migrants and non-migrants in terms of life table survivorship with corresponding estimates for life expectancy and reference period.

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Table 1: Life expectancy at birth of the German and the foreign population of Germany, selected calendar years

	Males					Females				
Calendar Year	1980	**1987**	1995	2000	2004	1980	**1987**	1995	2000	2004
Foreign Population	85.3	**78.0**	87.0	92.9	96.6	93.6	**85.1**	92.3	94.8	97.7
German Population	69.8	**72.0**	73.7	74.8	76.2	76.7	**78.7**	80.1	81.0	81.8
Difference	15.5	**6.0**	13.3	18.1	20.4	16.9	**6.4**	12.2	13.8	15.9

Data: Statistical Office of Germany; own calculations

Table 2: Number of respondents with mother alive and mother died, percentage of respondents with mother died, and average age at childbirth of respondents' mothers

	Origin		
	Turkish	Italian	German
Respondents with mother alive	1,174	785	1,016
Respondents with mother died	36	35	97
Percentage with mother died	**2.98**	**4.27**	**8.72**
Average Age at Childbirth	26.59	27.04	27.76

Source: Own calculations with data of the German Integration-Survey

Table 3: Number of respondents with father alive and father died, percentage of respondents with father died, and average age at childbirth of respondents' fathers

	Origin		
	Turkish	Italian	German
Respondents with father alive	1,144	1,081	988
Respondents with father died	80	81	129
Percentage with father died	**6.54**	**6.97**	**11.55**
Average Age at Childbirth	30.66	30.54	30.41

Source: Own calculations with data of the German Integration-Survey