

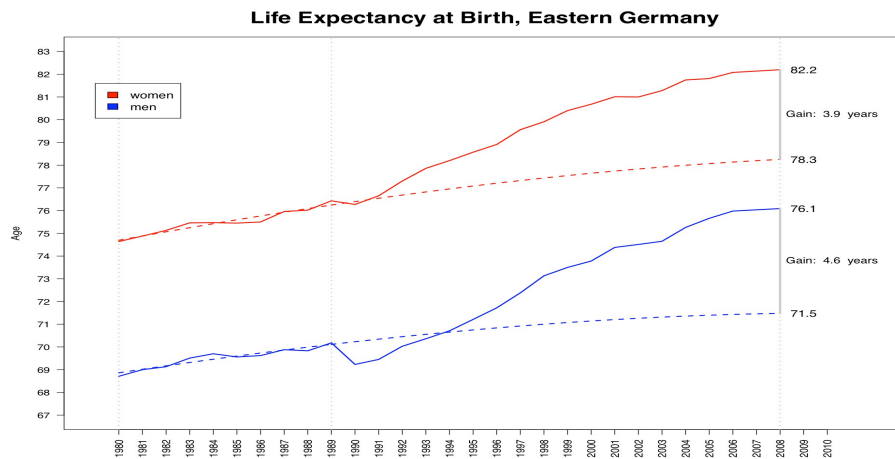
## **Money or Medicine - What triggered rising life expectancy in Eastern Germany after Unification?**

### **Abstract**

Since the social, economic and political transformation following the German unification, Eastern Germans have experienced large increases in life expectancy almost closing the gap to their Western compatriots. By making use of the natural-experiment setting, this elaboration seeks to shed some light on the impact of rising income and improved health care quality in lowering mortality. In this context, particular emphasis is set on the regional development of rising life expectancy not only on the level of the Eastern German Laender but also down to the district and community level.

### **Background**

Within the two decades since the German unification Eastern Germans have experienced a remarkable increase in life expectancy. Between 1990 and 2004 females have gained 4.6 years and males 5.3 in median life expectancy whereas their Western compatriots witnessed an increase of 'only' 2.4 and 3.4 years respectively. Hence, at the same time, the gap in life expectancy between East and West has narrowed from 2.6 years for females and 3.5 for males in 1990 to 0.3 and 1.6 in 2004 (GBE 2006). The progress in gained life years during this period is even more astonishing if its contrasted with the life expectancy Eastern Germans would have today if their living situation has remained constant since the 80s (see figure below).



Although considerable research has been carried out in the past 20 years, a comprehensive explanation for the inter- German convergence of life expectancy still lacks. By focussing on the particular impact of rising income and improving health care, the envisaged project seeks to fill this void.

### **The role of rising wealth**

By the introduction of the monetary, economic and social union at the 1st of July 1990, Eastern Germans experienced not only an adaption to the Western German social insurance system but also an overnight 10 fold purchasing power increase of their incomes and pensions since the Eastern German mark was converted by an exchange rate of 1:1 into the Western German Mark (Art.10 (5) Contract for the Establishment of a Monetary, Economic and Social Union 1990, Baylis 1993). The steep rise in real incomes coupled with the adoption of the Western social security system, in particular old age pension benefits, is perceived as a trigger of soaring life expectancy (Deaton 2003, Cutler et al. 2006). Although increasing wealth might have contributed uniformly to this gain in additional life, we assume that certain groups of the Eastern German population have benefited more than others. The leap in pension benefits, previously rather a meagre means to assure life for older age groups in the GDR (mean 300 Eastern German Marks), improved the socioeconomic position for the elderly substantially (Hockerts 1994). This might hold true for different income groups that could not only make use of higher incomes but at the same time also from a higher socioeconomic status which was rather levelled off during GDR times (Geißler 2008).

## **The role of improving health care**

Apart from the money hypothesis, the envisaged elaboration aims further to elucidate the impact of changing health care provision as a pivotal determinant for rising life expectancy (Nolte & McKee 2004). In this context, we draw upon the theoretical framework of epidemiological transitions and assume that the decline in cardiovascular mortality due to improved medical care and changing life styles which Western Europe already experienced since the 70's was postponed in Eastern Germany to the 90's (Omran 1971). By the adoption of the Western German health system modern medical devices and pharmaceuticals became available to foster the reduction in cardiovascular mortality not only in terms of improved treatment but also due to enhanced diagnosis (Vallin & Mesle 2004, 2005). Nevertheless, the more advanced health care provision may have impacted life expectancy rather heterogeneously over regions and time. Firstly, the development and organisation of a network comprising general practitioners and medical specialists may have occurred faster in metropolitan areas and larger cities than in rural regions. Secondly, regions suffering strongly from environmental contamination may have recovered differently than others. This might be accompanied by a general reduction of noxious exposures of workers to heavy industries like in the 'chemical triangle' around Halle, Leipzig and Bitterfeld.

## **Data Requirements**

The case of the German unification is a unique opportunity to gain further insight into the complex determinants of socioeconomic and political arrangements on individual demographic behaviour and outcomes. Since Germans as a population share the same cultural, genetic and historical background, the period of division and unification allows for assessing the impact of two different political frameworks on the demographic development within the same population.

## **Income**

In order to make full use of this natural experiment setting, the envisaged project needs to rely on multiple data sources covering the period before and after unification. To assess the role of rising income in raising life expectancy, we use the comprehensive datasets provided by the Research Unit of the German Pension

Insurance (Forschungsdatenzentrum der Gesetzlichen Rentenversicherung) which comprises information on benefits and contribution of 98% of Eastern German pensioners. It allows to quantify the increase in wealth for retirees and of persons still contributing over the regions of Eastern Germany since 1992. In addition it is necessary to access data from the former Eastern German social insurance to determine the influence of income and pension benefits on life expectancy during the GDR regime.

## **Health**

By using the cause of death statistics at community level, we seek to identify if cardiovascular mortality notably declined after unification and if this decline occurred first in metropolitan areas and later on in rural areas. This rich data source facilitates on the one hand the determination of changes in different causes of death and on the other hand the magnitude to which these shifts contributed to declining mortality. Furthermore, it is essential to combine this information with process data from health insurances before and after unification. Hence, we seek to access data from the GDR social insurance as well as from the AOK, a public German health insurance, which covers still around 80% of the Eastern German population. Finally, a case study is carried out by analysing the WHO MONICA datasets on social, medical and life style determinants of cardiovascular diseases that were collected in several cities in Eastern Germany during the mid 80s and 90s. As this project was also carried out in different cities in Western Germany it offers the opportunity to directly compare the drivers of cardiovascular mortality during and after the German separation.

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