Does public spending level mortality inequalities? - Findings from East Germany after the unification.

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Abstract

In the course of the social, economic and political transformation following the German unification, eastern Germans have experienced large increases in life expectancy almost catching up to the level of their western compatriots. The introduction of the generous West German welfare system was accompanied by mortality reductions in particular for older East Germans. By making use of this natural experiment, we seek to quantify the effect of increasing public social security transfers on rising life expectancy. Herein, we aim at capturing how elastic mortality is to public transfers in particular to pensions and health care or in other words: how much public spending is required to increase life expectancy by one year.

Background

As a result of historical events[1], the two parts of Germany experienced virtually opposite political and socio-economic environments. Over a period of 40 years, while West Germany was developing a functioning market economy, the socialist ideology in the East prevented a significant differentiation in wages (Franz and Steiner 2000). For the elderly, the pension system in the East provided public pensions that were nearly equal in small size (Hockerts 1994). Moreover, the egalitarian system in the East did neither allow for a large number of home-owners, nor for investments in luxury goods as additional future income sources. Because saving for retirement was unnecessary, and there were no incentives to save, most GDR citizens did not accumulate assets and relied almost exclusively on public transfers. Although the public pension system in the West was granting generous public pensions, and these pensions crowded out savings to an extent, the majority of West Germans sought to accumulate assets as well.[2]

The situation of East German pensioners changed dramatically in the course of the German unification. Before the political union entered into force, East and West Germany agreed upon a social, economic and currency union. It entailed the adoption to the western economic system and the introduction of the West German Mark as the official currency in East Germany. Simultaneously, the social union brought the establishment of the Federal German Welfare system through which East Germans became subsequently subject to the modern western health care system and the financially sound pension scheme.

In terms of income, the currency union meant an overnight purchasing power increase of wages and pensions since the eastern German mark was converted by a highly beneficial 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). The implementation western social security system required large investments in (medical) infrastructure and direct money through the public pension system.

The direct transfer of resources from the West to the East for infrastructure improvements is a subject that has been studied extensively. The "German Reunification" fund redistributed 160.7 billion German marks to the East between 1990 and 1994 (Wagner 2001).[3] Subsequently, the new Länder were included in the financial equalization scheme between the federal government and the Länder. During the period 1995 - 2005 (Solidarpakt I) about 204 billion (20 billion annually) euros were transferred to the East in an effort to bring the Eastern infrastructure up to Western levels (Wagner 2001). The amount transferred to the Eastern region exceeded five percent of West German GDP(Raffelhüschen 1999). The solidarity surcharge, additional payments of the fiscal equalization fund (Länderfinanzausgleich), and federal supplement grants (Bundesergänzungsabgabe) still play important roles in the fiscal budgets of local governments in the East. The "Solidarpakt II", which was established in 2005, seamlessly followed the earlier one, and will operate until 2019. According to Seitz (2006), the direct transfers to the East currently amount to 10 billion euros each year, and will gradually taper off until they reach three billion euros in 2019, after which the "Solidarpakt II" will expire.

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[1] After the Second World War Germany, was divided into an eastern part under Soviet authority, and a western part governed by the Western Allies over a period of 40 years.
[2] The mean amount of capital that was bequeathed in 2002 was more than four times higher for an individual from the West than from the East (Kohli 2002).
[3] The transfers to the East amounted to 18 percent of GDP if Berlin is included: if Berlin is not included the share rises to 26 percent of GDP.

In addition to these direct monetary transfers, transfers via the social security system, especially pensions, flowed from West to East. The East German system granted retirement benefits which were neither tied to the level of income, nor to the duration or size of contributions. A unitary monthly amount was distributed to the individual based on the number of years the person spent in employment, with amounts ranging from a basic provision (330 eastern German Marks) to a maximum of 470 eastern German Marks (Steffen 2002). After reunification the conversion of East German pensions was very generous and the values for the East were multiplied by an annual factor that resulted in pensioners in the East receiving approximately the same amounts as pensioners in the West, despite the fact that wages and pensions were much lower in the GDR. Indeed due to high labor force participation rates of women (Sinn 2002) and long working histories, East Germans had higher per capita pension values than their West German counterparts. In 2003, the social security budget in the East witnessed a shortfall of 60 billion Euros. The high per capita pension values are expected to decrease when the younger cohorts enter retirement age as they experienced severe disruptions in their working histories.

Methods and Data

To investigate the question how much money needs to be invested for an additional year to live we use two data sources that will be combined in the analysis. We draw upon data from the statutory German pension fund and National Transfer Accounts for Germany.

The data from the German pension fund consist of official insurance records which are collected over an individuals working life and used to calculate pension entitlements and benefits. We have information for the period 1993-2007 in form of yearly cross- sectional random samples. For each year, there is one sample containing pensioners who are receiving currently benefits and one sample of retirees who died during one year. There are more than 2 million individuals in the exposure sets and around 850.000 events of pensioners who died. Both sets contain information on the part of Germany where pension entitlements were awarded. In addition, we had information for every pensioner on the month and year of birth and death as well as the occupational status, number of children, health insurance, sex etc.[4]

The NTA is a framework for quantifying public and private inter-age reallocations in a cross-sectional one-year flow account. Three pieces of data are needed to construct NTAs: a micro survey providing the age utilization profiles, population estimates, and macro controls to adjust the micro profiles to fit the UN System of National Accounts. The macro controls are obtained from the national accounts of the corresponding year. The population estimates are available in one-year age groups provided by the German Federal Statistical Office (Statistisches Bundesamt 2009). The micro-level survey data are obtained from the German Income and Expenditure Survey (Einkommens- und Verbrauchsstichprobe, or EVS). A detailed overview of the construction of NTAs is available at www.ntaccounts.org.

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[4] For an in-depth description of the available variables see (Stegmann 2008, Himmelreicher et al. 2006).
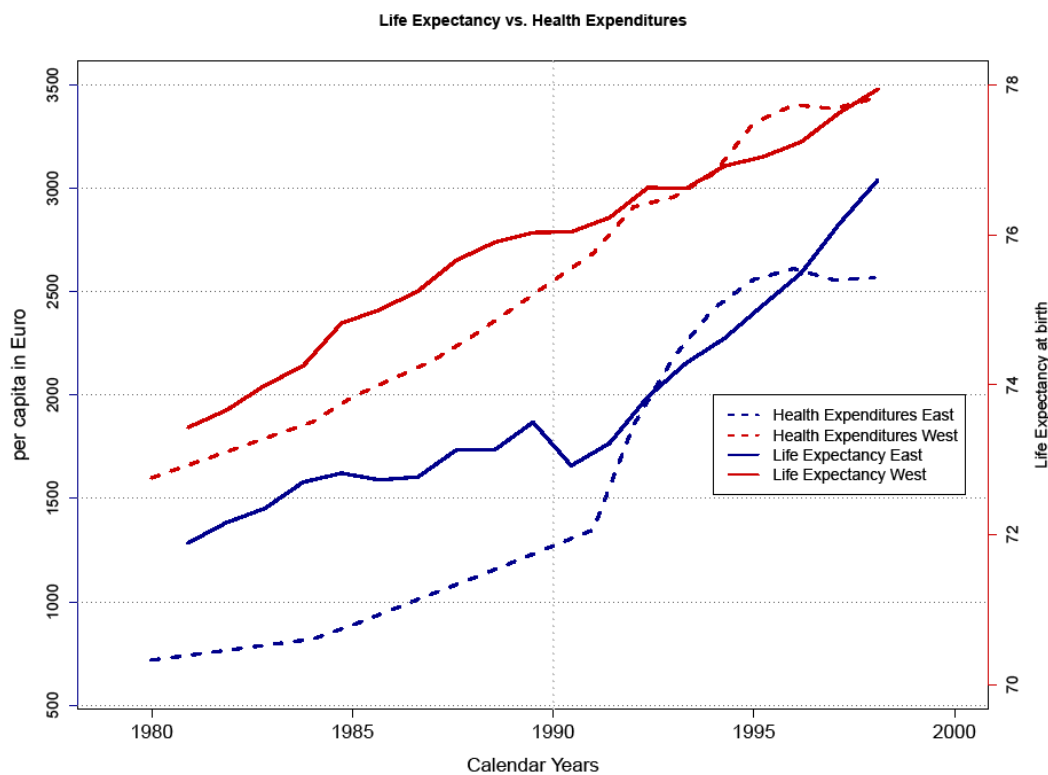
In addition to the data from the GRV, NTAs provide supplementary sources of income available to individuals such as asset income and private transfers, although the latter typically does not apply as private transfers stream downward by age and are thus not relevant as income source of the elderly. They are available for East and West Germany separately. Furthermore, NTAs provide detailed information about public transfers provided to the elderly including health or long-term care provision. For this part of the analysis the mean by age can provide useful information as public transfer flows do not depend on income but only on age utilization patterns. Data for East Germany is available shortly after the reunification and for the year 2003 to show the trend of expenditures. For the time before, information is scarce. Here the Statistical Yearbooks and some broad assumption will be needed to overcome the information shortage.

In order to quantify mortality elasticitiy, both data sources enter into a multilevel analysis framework. We use the macro level NTA data transfers to measure the effect of public spending in East Germany on infrastructure and monetary transfers. On the micro level, we use the pension data to identify how individual income changes influences survival.

Preliminary results and outlook:

Figure 1 shows that the rise in life expectancy after unification was accompanied by soaring health spending per capita.

Figure 1: Total Health Expenditures vs Life Expectancy at Birth

Before unification, health expenditures per capita were less than half as high as in West Germany.[5] The increase of public spending for health care is paralleled by rising average pension benefits for East Germans (see Figure 2).

Figure 2: Average Pension Benefits for East and West German Pensioners

Average Monthly Pension East vs West
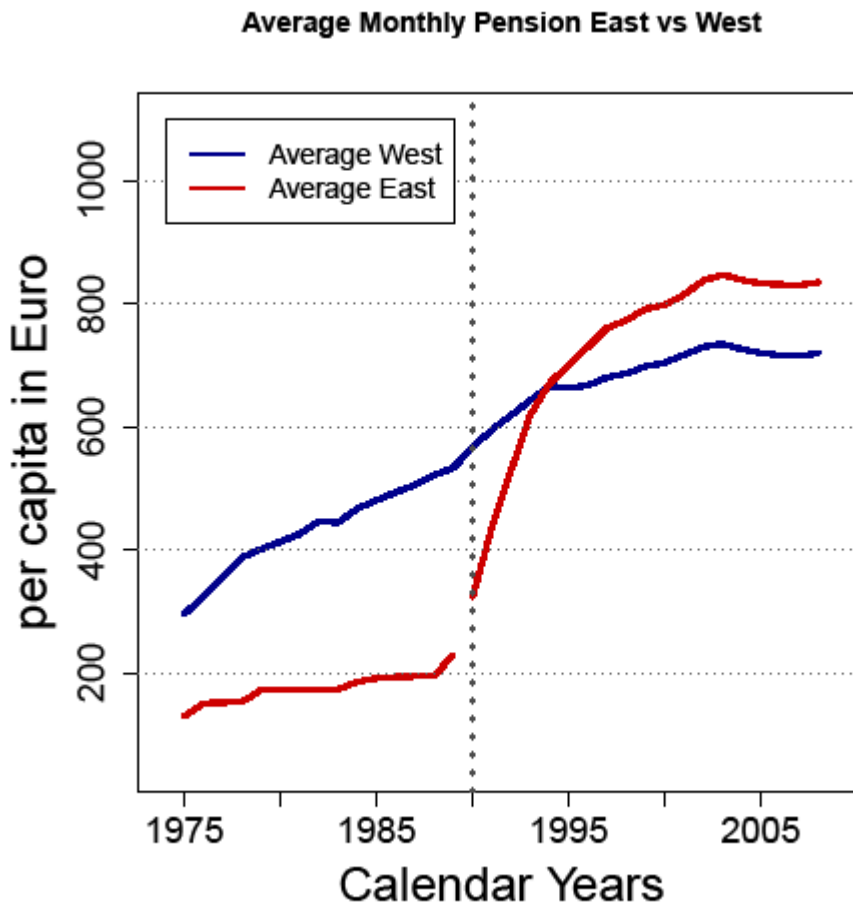
Source: Statistical Yearbooks German Democratic Republic 1980 and 1990, DRV 2011 (own calculations)

Again, pensioners benefited from public transfer and money redistribution through the statutory pension system. Income disparities before unification were narrowed rapidly after the Fall of the Berlin Wall. Already at the beginning of the 1990s, the average height of pensions exceeded the level of the West.

On this background, we expect that our analysis allows for the measurement of life expectancy changes conditional on increasing public spending. We seek to quantify

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[5] These calculations are base on an exchange rate of 1:1 between the East German and the West German Mark. However, parity estimations assume that the real value of the East German Mark was ranging between 5:1 and 10:1.

how elastic mortality is to welfare expenditures. In other words how much Euros had to be spent to gain one additional year of remaining life expectancy.

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