Care for money?
Mortality improvements, increasing intergenerational transfers and time use for the elderly.

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Abstract

Background: After German reunification mortality among older East Germans converged quickly to the West German level. Simultaneously, they witnessed an 10-fold rise in pension benefits.

Objective: By using this natural experiment, we seek to show, first, that increasing financial transfers from the elderly to their children led to increasing reverse transfers in form of care and, second, that this rise in hours spent for care led to a reduction in old age mortality.

Method: We use poisson regression to test whether rising pensions led to an increase of hours spend on care and if this increase led to a reduction in old age mortality. We use data from the German Pension Fund and data on time use from the NTA project.

Preliminary Results: Our first results reveal that since German reunification intergenerational downward transfers more than doubled. This is caused by the immense increase in pension benefits since the Fall of the Berlin Wall. At the same time, mortality for pensioners dropped markedly and converged to the West German level.

1 Background

There is ongoing debate about the causal relationship between income and mortality (Smith, 1999). Despite increasing evidence that wealthier individuals tend to live longer, the causal direction and the underlying mechanisms are still discussed (Cutler et al., 2006). Several studies suggest that better health determines the ability to accumulate more human capital and income which, in turn, lowers mortality (Costa, 1994). The basis for future health and earnings may be layed as early as during the first years of life (Bengtsson and Broström, 2009; Bengtsson and Mineau, 2009; van den Berg et al., 2006). External conditions as well as physical disposition are shaping future health and consequently future wealth. Thus, the scarring hypothesis emphazises that a major cause for the strong association between income and mortality is determined by cohort effects (Case et al., 2002). This implies that changes in the political, economic or social environment which may influence income levels have a smaller impact on later life mortality once an individual is on the wrong track.

Despite the importance of early life conditions for later health and the ability to accumulate wealth, period effects even at higher ages still play a important role in shaping old age mortality (Vaupel et al., 2003). Thus, changing income levels are an important determinant of health and mortality and not merely its outcome. This associaton holds true within and between countries (Preston, 1975; Deaton, 2003). An ever increasing number of studies shows that widening income inequalities entail rising mortality disparities (Kitagawa and Hauser, 1973; Marmot, 2002). This also implies that narrowing income inequalities may lead to converging mortality levels (Vogt and Kluge, 2012).

For both directions of association, from income to health or from health to income, the question remains: is there a direct relationship between survival and the amenities that money can buy, or is income associated with health through some more complicated mechanism? Many studies emphasize that income is a proxy for socioeconomic status and an outcome of education or occupational status, which in turn determine mortality risks (Elo and Preston, 1996; Muller, 2002). However, these components of socioeconomic status cannot fully account for mortality differentials according to income groups. The effect of income still persists, even when education is taken into account (Blakely and Kawachi, 2002; Babones, 2008). Thus, income may influence health and mortality directly via the amenities it can buy. Wealthier individuals are able to afford comodities that promote health and survival like better nutrition, improved housing situations or the general material security to cope with stressful events (Kuh and Ben-Shlomo, 2004; Barker, 1997; Wilkinson, 1997).

1.1 Intergenerational transfers and mortality

We seek to add to this discussion by testing another pathway through which income may influence health and mortality. We assume that higher income fosters intergenerational downward transfers which in return may lead to rising upward intergenerational transfers in care or general contact. Close family ties or social networks were identified as crucial factors for later life well-being, health and survival (Olsen et al., 1991; Kobrin and Hendershot, 1977; Anson, 2010). An increasing number of ties or contacts within a network was associated with a lower mortality risk among the elderly (Eng et al., 2002). Hence, incentives that trigger higher connectivity among family members may be beneficial in terms of reducing mortality. In this context, a potential stimulus is increasing financial intergenerational transfers.

The underlying motivation for transfers is studied numerously. While public transfers are usually non-voluntarily the opposite is true for private transfers. A vast literature has tried to provide satisfying answers to the question of why transfers arise. The motives reach from pure altruism as formulated in Becker (1974), to accidental bequests (Yaari, 1965; Barro and Friedman, 1977; Davies, 1981) to an exchange motive (Cox, 1987). The research about motives is not without ambiguity as can be illustrated by savings decisions. People can either save with a bequest motive in mind as pointed out by Kotlikoff (1988); Kotlikoff and Summers (1981). For them, intergenerational transfers are the major component of wealth accumulation in the US. In contrast, Modigliani (1988) summarizes that it is rather precautionary saving and uncertainty about the length of life that results in bequests. The joy of giving as a transfer reason is also noted. A thorough overview about transfer motives is given by Lüth (2001).

We follow another assumption connected to the savings motive which highlights that bequest are used strategically to reward desired behavior (Bernheim et al., 1985). Thus, increasing pension benefits may be used to motivate children or relatives to provide informal care or support in coping with daily activities. We assume further that children may follow the savings motive themselves which motivates them to foster their parents' survival. Having a longer life increases the wealth of their parents and the total amount of pension income and, ultimately, the size of the bequests. These mechanisms would increase old age survival via rising income. The higher the potential downward transfers the higher may be the incentive to provide upward transfers in (informal) care.

1.2 The German reunification - A natural experiment

Testing causal relationships is greatly facilitated when we consider natural experiments (Campbell and Stanley, 1966). Thus, the German reunification provides a unique opportunity to the test our hypothesis. One population with the same background was divided over four decades and received a contrary social, political and economic 'treatment'. The unforeseen Fall of the Berlin wall terminated the separation and within less than one year East Germans adapted the West German system. East German life expectancy responded very plastic to the transformation of the society (see Figure 1).

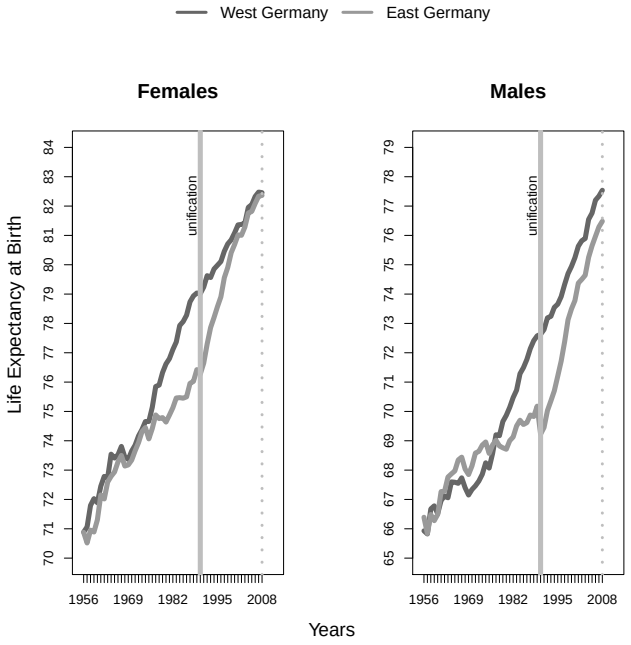

Figure 1: Life expectancy convergence between East and West Germany

One of the main reason for the mortality convergence between East and West Germany was the increase in income after reunification (Diehl, 2008; Vogt and Kluge, 2012). The main beneficiaries of this increase were pensioners in the East. They benefited not only from the conversion of the East German to the West German mark which increased their purchasing power up to 10 times but also from an adoption of the West German pension system (see Figure 2)[1]. A previous study showed that the period effect of in-

[1]The East German Mark was converted into the West German Mark with an exchange rate of 1:1. This parity greatly overrated the real value of the East German Mark. More realistic estimations range between 5:1 and 10:1 (Neumann 1992, Baylis 1993).

creases in pension income was indeed associated with the catch-up in life expectancy for the elderly and that pensioners with children benefited most from rising retirement benefits (Vogt and Vaupel, 2010).

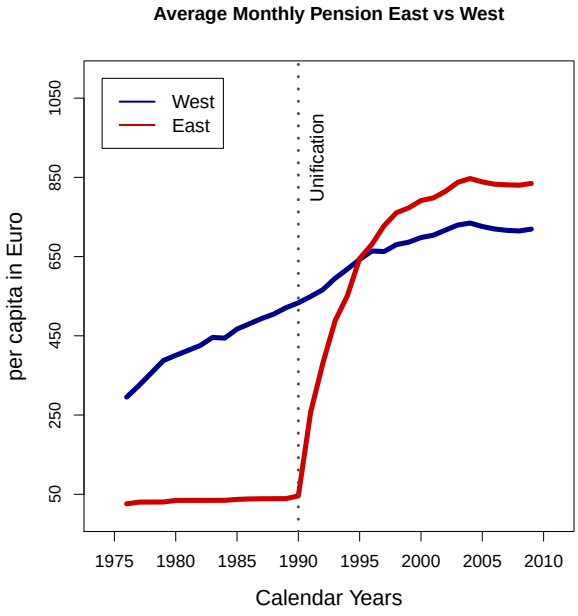

Figure 2: Convergence of monthly retirement benefits (both sexes)

We make use of this setting and aim at testing, first, whether increases in retirement benefits lead to rising intergenerational transfers, second, if increases in downward transfers entail rising upward transfers in terms of time spend with the elderly and, third, if this increase in upward transfers results in lower mortality among the elderly.

2 Data and Methods

The monetary estimates for private transfers are obtained by following the standard methodology of the National Transfer Accounts. The theoretical framework builds upon Samuelson (1958); Diamond (1965); Lee (1994). Information about consumption, income, the age utilization of public expenditures and revenues, and corresponding private transfers is provided in the database for Germany. In order to construct NTAs, a micro survey that estimates age utilization profiles is needed. The German Income and Expenditure Survey in 2003 (Einkommens- und Verbrauchsstichprobe, or EVS) serves

as the micro foundation of the relative age shares. We have chosen to use the National Transfer Accounts for 1993 and 2003 because these years closely correspond to the time use estimates that are available for 1992 and 2002. The EVS is based on a representative quota sample of Germany's private households, and covers information on income, consumption, transfers, savings, and assets. The EVS for 2003 includes around 50,000 households, and is representative of households with a monthly net income of less than 18,000 euros. In addition to income and consumption, the EVS includes all of the relevant public transfers to households, and it allows for estimations of private intra-familial flows.

Furthermore, population estimates are needed to estimate per capita consumption, income, and transfers by age. These are available in one-year age groups, and are provided by the German Federal Statistical Office. To ensure that they fit the UN System of National Accounts and that they are nationally representative, the per capita age profiles are scaled to match at the macroeconomic level.

Having outlined the methodology for obtaining the monetary lifecycle results for the East, we add non-market variables to the picture. To estimate production, consumption, and transfers in the household, the Time Use Surveys 1991/92 and 2001/02 are employed. The scientific use files for Germany include 5,400 households, 12,600 individuals, and 37,700 diary entries. Individuals were asked to fill in a calendar for three representative days, reporting all of their activities that require at least 10 minutes of attention. The time spent per day on cooking, cleaning, or caring for each individual of a respective age group is recorded.

The data is then used in a poisson regression model. First, we test whether increasing pension benefits in the East had an impact on hours spend on intergenerational care. Herein, we control for demographic factors like sex, age, number of children and grandchildren. Second, we seek to quantify the effect of the rising number of hours spent on care on mortality for the elderly. Here, we control for the same factors as in the first model. We run both models independentely for East Germany and West Germany as the control group.

3 Some Preliminary Results

We want to investigate the link between rising retirement income in the natural experiment setting in East Germany, increasing private transfers from the old to the young generations and the time the younger generation devotes to the older generations. First results show a significant increase in monetary private downward transfers in the East.

The strict downward flow of private transfers in the East is especially surprising, as eastern German pensioners rely almost exclusively on public pensions, with assets playing a minor role in their portfolios. Total private transfers add up to 63 billion euros in the East (also including transfers to children under adult age).

The percentage share of income transferred to the next generation by individuals aged 65 or older significantly increased in the East. While in 1993, Eastern German pensioners tranferred 2.7 percent of their income to descending generations, the share increased to 5.7 percent in 2003. Even if the percentage shares would have stayed on the same level, the increase would have been substantial as disposable income has risen manifold. That the percentage share more than doubled within 10 years is remarkable and hints to an exchange motive.

At the same time mortality declined substantially, especially for the individuals in retirement age. Their rates quickly neared the western mortality levels. Our preliminary results suggest that old age survival in East Germany was facilitated by increases in pension and the following increase in intergenerational care. Younger East Germans seem to have cared more for their parents to increase their expected bequests resulting from increasing pension payments. These links observed on the macro level we would like to test with our model in more detail.

The expected findings will provide insights about intergenerational ties and motives for private transfers. This has important implications for aging societies with a decreasing number of children and increasing bequests per capita. Family ties would be strengthened in an aging society due to the fact that the younger generation expects to inherit higher amounts and hint to strategic bequests.

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