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# Intergenerational Transfers and Population Aging: The German Case estimated with NTA

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**Abstract**

This research project seeks to quantify all public and private interage monetary flows in Germany applying the National Transfer Account method. The individual economic life cycle is characterized by long periods of dependency during childhood and after retirement. The dependent stages amount to about half a lifetime and have to be financed by shifting resources between generations. We will identify the magnitude of intergenerational transfers, the predominant transfer channels, and the varying income sources over the life cycle in the German case. Germany is a picture book welfare state, over the last century the government took over more and more functions the family would once have absorbed. The aim is to give a more complete picture of intergenerational relations by including private transfers and the benefits from public goods in the analysis. Special emphasis will be placed on differences in East/West transfer patterns, and the historic perspective studying their evolvement.

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# 1 Introduction

Throughout life, individuals show remarkably long periods of dependency (when consumption exceeds production) during childhood and old age (Lee et al., 2006). The required size of monetary flows to finance this dependency is large, intergenerational transfers amount to about one-half of national income (Mason, 2005). Generational Accounting (GA) was the first approach to study intergenerational relations in a broader concept. GA measures the burden imposed on future generations via public expenditure (Auerbach et al., 1991, 1992, 1994, 1999). GA restricts itself to the public sector and is a stock account that calculates the present value of net tax payments of all current and future generations. For Germany, GA in the baseline scenario finds an imbalance of the magnitude of 156,1% of net tax payments for future generations (Raffelhüschen and Walliser, 1999).

A more recent approach concerned with intergenerational relations is the National Transfer Account (NTA) Project. The theoretical roots are given by Samuelson (1958), Diamond (1965), Willis (1988), Lee (1994) and Bommier and Lee (2003). NTA incorporates public and private reallocation in a cross-sectional setting, based on a one year flow account, and makes effort to include the benefits from public goods. The accounting is consistent with the National Income and Product Accounts. An examination of the gap between consumption and income over the lifecycle leads to important insights about the social and economic institutions (e.g. what are the predominant redistributing institutions, magnitudes of different kinds of transfers, policy implications) that enable the economic flows between age groups that finance the large deficits at the beginning and the end of life (Lee et al., 2006; Mason, 2006).

This paper seeks to quantify all public and private interage monetary flows in Germany applying the National Transfer Account method. Like in other welfare states, intergenerational transfers amount to a considerable share of GDP, with the public reallocation being more pronounced than the private reallocation mechanisms. Private intergenerational transfers amount to about 7,5% of GDP, with at least 10% of transfer to be intentional (Lüth, 2001). In addition to private transfers, public expenditure redistributes larger funds between age groups. Pensions for old age amount to 22% and public health spending for 17% of the public expenditure paid via large redistributions from those of working age to dependent age groups. The intergenerational redistribution is far more pronounced in Germany than the intragenerational, the German system emphasizes the insurance component over the welfare component (Boll et al., 1994). The key role of the state is especially valid for elderly people. 80% of their total income comes from public transfers (pensions) (Börsch-Supan, 1992; Reil-Held, 2002; Börsch-Supan and Schnabel, 1999). The reliance of pensioners on the state is even more pronounced in the former eastern part. Private transfer patterns also differ in East and West as examined in Kohli et al. (2006). The stepwise construction of the NTA for Germany and the two subsets for East and West will contribute to the discussion on aging and intergenerational relations in Germany. We propose that by including all transfer flows and the benefits from public goods (e.g. for education) the results will become more realistic and less gloomy.

## 2 Materials and Methods

Data for this analysis come from three sources: micro-level survey data from the German Socio-Economic Panel (GSOEP) and the Income and Expenditure Survey (EVS); macro controls and population estimates from the German Federal Statistical Office (FSO). The population estimates are available in single-year age groups for Germany, as well as separately for East and West. Macro controls are obtained from the National Accounts provided by the FSO in a manner following the UN SNA methodology and Statistical Yearbooks. For the different accounts in East and West the statistical publications from the different Länder are reviewed. The micro data comes from two representative German surveys. The GSOEP is a panel conducted annually since 1984 by the German Institute for Economic Research (DIW) - first only in Western Germany and, since the Reunification, a subsample for East Germany is included. The GSOEP provides necessary information on income sources and living conditions for a sample size of about 12,000 households, but it is missing relevant private consumption variables. The EVS is a survey conducted every five years since 1973 by the Federal Statistical Office, the sample includes 50,000 households. It provides detailed information about income sources and expenditure purposes of German households. 2003 is the latest accessible survey year, so the estimates will focus on 2003.

For comparative reasons the NTA methodology will be followed to construct the German NTA. The flow account identity is given by

$$\underbrace{Y^l(a) + Y^a(a) + \tau^+(a)}_{Inflows} = \underbrace{C(a) + S(a) + \tau^-(a)}_{Outflows} \tag{1}$$

where $Y^l(a)$ is the labor income, $Y^a(a)$ the asset income and $\tau^+(a)$ are the transfers received at each corresponding age a. $C(a)$, $S(a)$ and $\tau^-(a)$ are consumption, savings and transfers paid at each age. The inflows need to equal the outflows. Rearranging 1 leads to

$$\underbrace{C(a) - Y^l(a)}_{\text{Lifecycle Deficit}} = \underbrace{\underbrace{Y^a(a) - S(a)}_{\text{Asset-based Reallocations}} + \underbrace{\tau^+(a) - \tau^-(a)}_{\text{Net Transfers}}}_{\text{Age Reallocations}} \tag{2}$$

(Mason, 2006). A closer look into these reallocation mechanisms will enable us to determine, to what extent the Lifecycle Deficit is financed via public or private tranfer channels, the leading institutions that reallocate between age groups, and their respective differences in East and West. So for Germany the LCD, the asset-based reallocations and transfers will be identified for East and West. The age profiles needed to compute the NTA (e.g. for income, consumption, public or private transfers, asset income) are drawn from survey data. These profiles are then smoothed and adjusted to the corresponding macro control. For private consumption on education and health, data on the household level is available but is needed on the individual level, a method similar to Attanasio et al. (1999) is employed. Other consumption is allocated based on an allocation rule invented by Deaton and Paxson (1997). Our equivalence scale is more continuous but similar (Lee et al., 2006). For public consumption the information needed can be obtained by the Ministry of Education and the Ministry of Health. The public sector account also bases on survey data

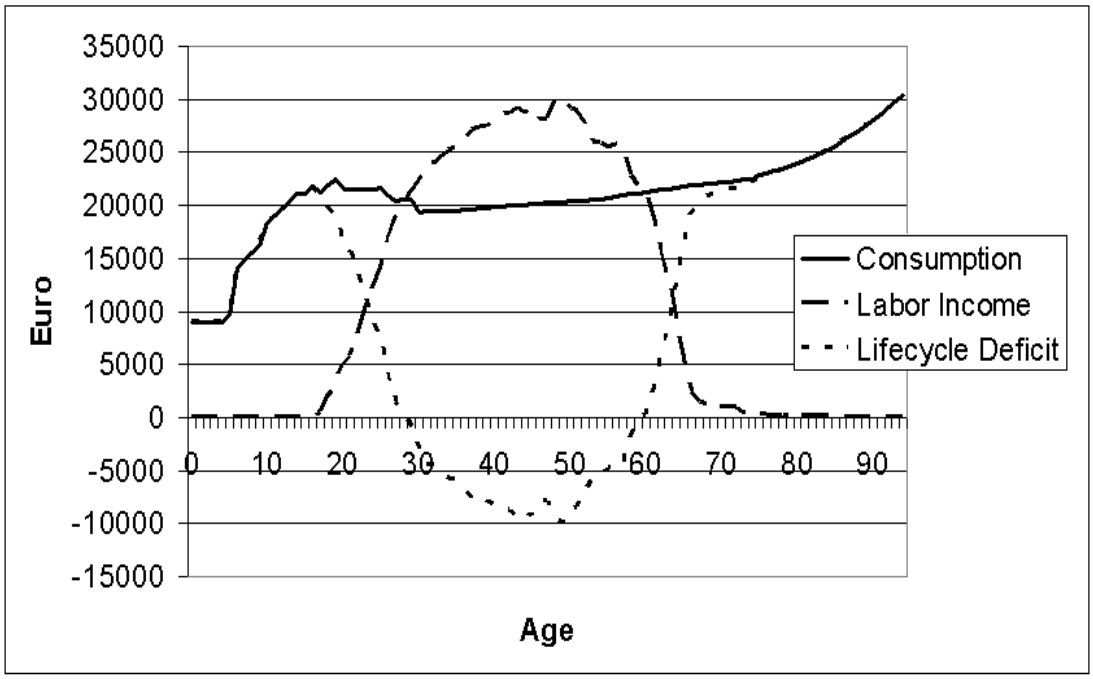
and is adjusted to macro controls provided by the Federal Statistical Office. The stepwise construction of the three NTA sets (Germany, East and West) will illuminate intergenerational relations in Germany and the regional diparaties. An issue to solve remains how to disentangle the interstate flows. We expect to find the public sector to play a bigger role in the eastern part for redistributing resources. Assets play a minor part in the disposable income of eastern retirees. The higher dependence on the state in the eastern part is valid for retirees (Börsch-Supan and Schnabel, 1999), people getting state benefits for being unemployed due to higher unemloyment rates, and single parent arrangements that are more likely to get additional public transfers (the proportion is twice as high as in the West) (Konietzka and Kreyenfeld, 2005), and hints at substantial differences between the two regions that need further investigation.

# 3 Preliminary Results

Figure 1 shows first estimates for the German LCD. The typical LCD pattern for countries with welfare state elements is pictured. For the labor income, age 17 is the first observation realizing an income greater 0. Earnings from the formal sector are the main labor income source, self-employment income plays a minor role. The sharp decline in the early 60s is probably due to the legal regulations for retirement that implicitly punish working longer (Börsch-Supan, 2003). The public consumption is driven by education expenditure at younger ages and health expenditure at older ages. Utilization indicators are the cost for illnesses at each age (for health) and the per student expenditure (for education). Non age-targeted expenditure is split equally among the citizens. Private consumption is still missing; the macro control is age-adjusted using the equivalence scale. According to this estimates, the productive period of an individual starts at the age of 29 and ends at 60. With the life expectancy at birth given for Germany (76.89 years for men and 82.25 years for women) more than half a life individuals are dependent on transfer payments. The German education system and retirement modalities work in favor of a short lifecycle surplus and prolonged dependent stages. The German social security system grants generous public cash and in kind transfers to its citizens. Figure 2 illustrates the age profiles for in kind and cash transfer inflows (from household perspective) and the age profile for the outflows per capita. The net public transfers are mainly driven by the cash transfers for old age and widow pensions and health expenditure. Most other transfers are far less important. On the aggregate level this is even more pronounced as Germany is a rapidly aging society. The public transfers need to be adjusted by the private transfers mainly going the reverse direction (from old to young) and maybe brightening the picture.

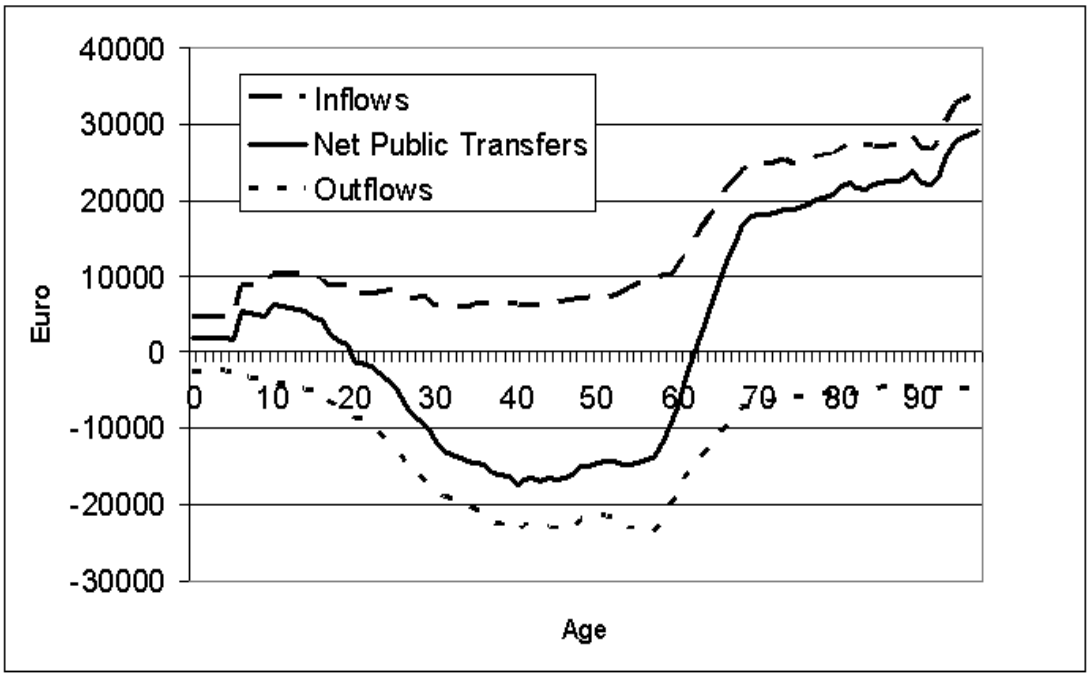
Future work will adjust the private consumption using EVS data and expand the public sector estimates. We will also calculate the private transfers and the asset-based reallocations and work on the two NTA subsets for East and West to identify differences in intergenerational relations in different regions within the country. In addition, the findings for Germany can be used for comparison with other countries participating in the NTA project. Especially the public sector account seems to have most interesting comparative potential with other welfare states (e.g. Sweden, Finland), but also within Germany (East West differences), contributing to the literature on public programs, their evolvement and implications.

Figure 1: Lifecycle Deficit per capita, Germany 2004, preliminary




Source: own calculations based on GSOEP and National Accounts

Figure 2: Net Public Transfers Germany 2006, per capita values, preliminary




Source: own calculations based on GSOEP and National Accounts

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