DEMOGRAPHIC CHANGE AND FEDERAL SYSTEMS: SOME PRELIMINARY RESULTS FOR GERMANY [1]

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Abstract

The paper examines the impact of demographic change on federal, state and local government expenditures in Germany. Public spending is broken down into almost 30 categories (functions) and simple estimates of age cost profiles are derived. Using population

governments. Our results show that subnational governments - state and local governments - can expect demographic savings whereas the federal government will live to see a worsening of its fiscal stance. Thus one should expect that significant vertical expenditure imbalances will arise that - if institutional settings are left unchanged - will ask for an adjustment of revenue distribution with

virtually all policy areas. In recent years, a substantial body of "demo-economics" literature has developed and addresses issues such as the construction of a sustainable old-age pension system[2], the impact of ageing on health expenditures, the labour market[3] (productivity, labour market participation etc.) and economic growth as well as public sector budgets in general.

The present paper is devoted to an examination of the fiscal consequences of demographic changes in federal systems, a subject that has been rarely discussed.[4] Notable exceptions are the studies by Lazar/St-Hilaire/Tremblay (2003), Matier/Wu/Jackson (2001), Ruggeri (2001), the Conference Board of Canada (2002) and the theoretical work of Echevarría (1995). Most studies that address fiscal issues examine the budget of the central government or the total government sector. However, in federal systems repercussions of demographics on public expenditures and revenues can differ significantly across levels of governments. In addition, at the subnational government level, the regional dimension of demographic change has to be taken into account. However, the latter subject is not touched upon in the subsequent discussion and we confine our examination to the central government level as well as the aggregate state and local government level. Contrary to OECD practice the social security system is *not* included in our definition of the public sector.

Germany before and after unification. The federal government sector accounts for about 50% of total net government expenditures. This

Before we turn to our empirical investigation we examine some methodical issues that arise if the effects of demographic change on public budgets are examined. Total public expenditures can be written as:

$$E_t = \sum_{j=1}^{J} E_{j,t} \,. \tag{1}$$

$E_{j,t}$ denotes expenditures in spending category j in period t. A decomposition of expenditures by age groups can be achieved by using the *age cost profile*

have a peak for younger cohorts due to the responsibility for education whereas the age cost profile of the federal government is expected to be biased towards the elderly.

We already mentioned that in Germany 2/3 of tax revenues come out of taxes and thus, the corresponding age revenue profiles should not be that much different across the layers of government in Germany. In addition, the fiscal equalization systems at the state and local government level as well as the high volume of interjurisdictional fiscal transfers should work towards a marked convergence of age revenue profiles across the three levels of governments. For the latter reason we restrain from considering age revenue profiles in this study.

A final issue that has to be discussed is the stability of age cost and revenue profiles across time. One should not expect that these are time-invariant.[14] Thus for example, in the past we observed health care price indices to rise considerably faster than the average price level. This tendency - despite many policy actions to curb costs in the health sector - might well continue in the future resulting in a relative increase of the cost of servicing the elderly. In addition, the resources devoted to specific age groups (public education, cultural activities etc.) are decided upon in a political process of voting and the ageing process can result in a shift of political majorities that ask for different bundles

BY LEVEL OF GOVERNMENT IN GERMANY

In this section we use a simple simulation technique to derive estimates of the effects of demographic change on public expenditures at the various levels of government in Germany subject to the following assumptions:

1. The population is divided into six age groups.
2. Age cost profiles are assumed not to change in the period 2001 to 2030.
3. The public expenditure structure is perfectly and instantly adjusted[15] to changes in the age composition as well as the size of the population.
4. Price effects (wage and price inflation) as well as real growth are disregarded.
5. "Estimates" of age cost profiles are derived from data for the fiscal year 2001 as explained below.
6. We assume that the distribution of tasks between the different levels of governments as well as the legal and institutional settings do not change in the period 2001 to 2030.

compare the structure and the volume of public expenditures by level of government in the year 2030 to that of 2001 and to examine the question whether vertical fiscal expenditure imbalances arise out of demographic changes.

next decades.[22] In addition our results suggest

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Figure 3: Population aged (65+) in East and West Germany as a share of total population

Table 1: Key-Data on intergovernmental fiscal relations in Germany in 2001

	Federal	state	local	social sec.
A.1 Share of expenditures financed by transfers from other levels of government				
total	1,4	16,2	33,7	17,1
West Germany		12,0	28,4	
East Germany		39,5	59,4	
A.2 Transfers to other levels of government as a share of total expenditures				
total	47,1	21,6	5,0	0
West Germany		19,7	5,5	
East Germany		35,2	2,3	
B.1 Share of revenues out of taxes, social security contributions etc.				
total	87,1	71,8	34,1	81,3
West Germany		76,4	37,8	
East Germany		49,5	16,1	
B.2 Share of revenues out of transfers from other levels of government				
total	1,5	18,0	34,6	17,2
West Germany		13,4	29,3	
East Germany		41,2	60,3	

Source: Calculated from data supplied by the Federal Statistical Office of Germany.

Figure 5: (Net) spending shares of the federal, state and local government sector in Germany 1975 - 2001

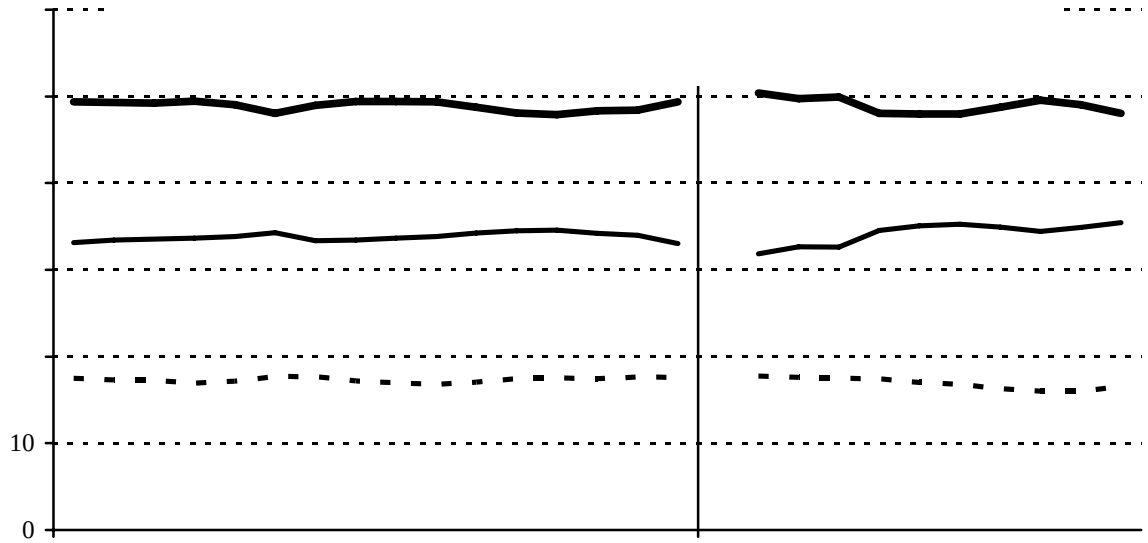

Table 3: Share of net expenditures by function of the federal, state and local government sector in Germany in fiscal year 2001

		Federal	State	Local
1	General public services/administration	30,6%	32,7%	36,7%
2	Defence	100,0%	0,0%	0,0%
3	Public order & safety	8,0%	72,3%	19,6%
3.1	police, etc.	10,5%	59,9%	29,6%
3.2	jurisdiction, prisons, etc.	3,1%		

Figure 6: Stylized age cost profiles: per capita expenditure of the specific age groups across all government functions by level of government for Germany

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Figure 7: Net spending per capita of the relevant age group across all government functions in Euro in 2001 by level of government in Germany

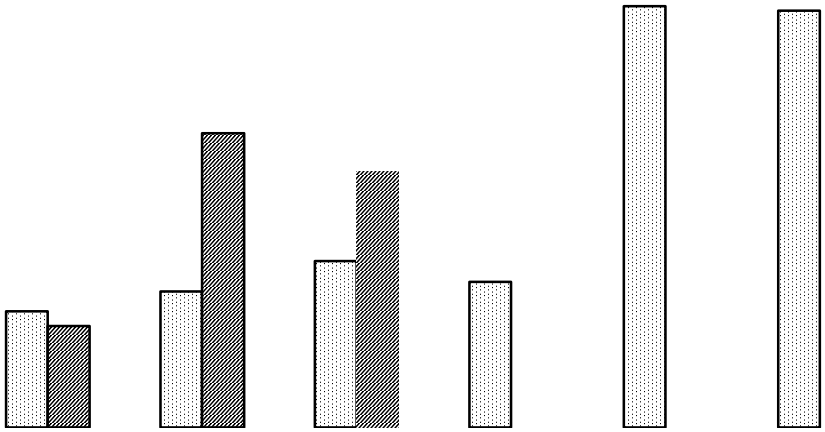

Figure 8b: Age specific expenditure shares across all government functions at the state government level in 2001 and 2030

Table 5: Changes in expenditures by level of government induced by demographic change in the period 2001 - 2030 assuming time-invariant age cost profiles

	total expenditure growth	total per capita expenditure growth
Federal government	11,41%	13,18%
State Government Sector	-3,65%	-2,12%
Local Government Sector	-6,66%	-4,93%
Total Government Sector (without social security)	2,72%	4,36ETEMC /P ÆMCID 16[7