

# The Impact of Population Aging on Fiscal Policies in Germany

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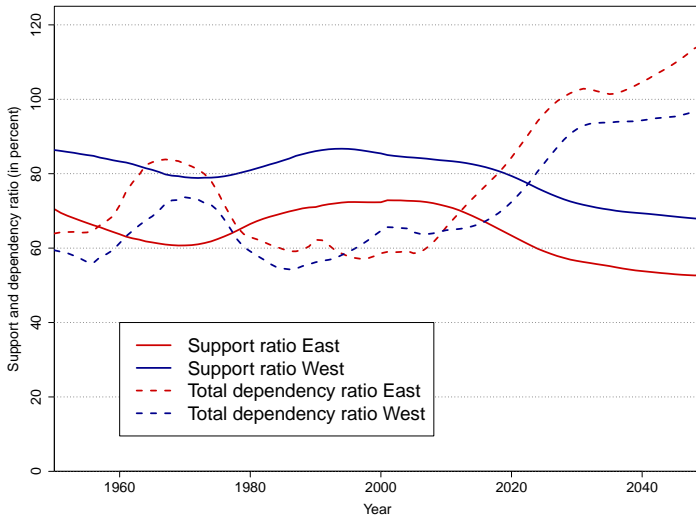
# Population Aging and Fiscal Policies

- ▶ For more than half their lifetime individuals are dependent on transfers, the productive period lasts around 30 years (Mason 2005).
- ▶ In Germany, the public sector redistributes the majority of resources to the dependent age groups.
- ▶ Rising life expectancy will prolong the dependent period.

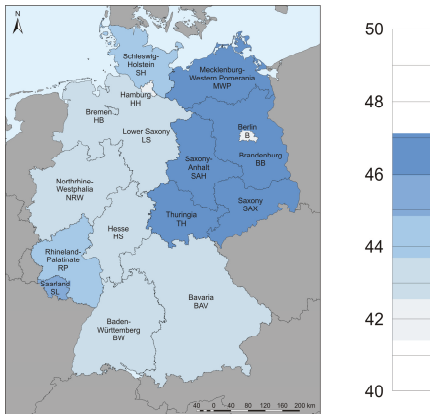
⇒ **RQ: Will population aging endanger governmental financial sustainability?**



# Dependency and Economic Support Ratios, Germany



# Median Age Across the States



# Population Aging does not affect the expenditures of the layers of government to the same extent

- ▶ **Federal government:** national defense, infrastructure, administration, child allowances, federal supplementary grant to social security
- ▶ **State governments:** education, civil servants' pensions, student loans, basic social welfare
- ▶ **Local governments:** childcare, housing allowances, civil servants' pensions, additional long-term care related expenditures
- ▶ **Social security:** health, long-term care, pensions and unemployment benefits



# Fiscal Federalism and Government Revenue

- ▶ Fiscal autonomy of subnational government restricted. States have little power to tax but by voting in the *Bundesrat* they can influence tax legislation considerably.
- ▶ Art. 71 Basic Law: equal living conditions across all states → horizontal fiscal equalization scheme; distribution of tax revenue crucially dependent on number of inhabitants in a state.
- ▶ Local governments have significant taxation power: local business tax rate, local property tax.



## Earlier studies for the U.S. and Germany

- ▶ **U.S.:** Lee and Edwards [2002], Lee and Tuljapurkar [1998] and Edwards [2010].
- ▶ **Germany:** Bach et al. [2002]; Hofmann et al. [2008]; Seitz [2008a,b]; Seitz et al. [2005]; Seitz and Kempkes [2007]
- ▶ Numerous studies on sub-budgets (e.g. pensions, health care and education).



# How to construct the age profiles?

## National Transfer Accounts

- ▶ NTA age profiles for public sector variables.
- ▶ Here: Not one macro control but four (Federal, state, local, and social security).
- ▶ Weakness: Accounts only for mean of states or municipalities.

## Data needed

- ▶ Population estimates by single years of age.
- ▶ Detailed national accounts for the public sector.
- ▶ Micro-survey: Income and Expenditure Survey





Government expenditures:

$$E_t = \sum_{j=1}^J TG_{j,t}^{in-kind} + TG_{j,t}^{cash}. \quad (1)$$

Government revenues:

$$T_{j,t} = \sum_{j=1}^J TGO_{j,t}^L + TGO_{j,t}^A + TGO_{j,t}^C + TGO_{j,t}^O. \quad (2)$$



Table: Monetary public transfers by layer of government and social security, Germany 2003 in billion euros

	Total	Federal	Länder	Local	SocSec
Pensions	266.4	83.2	21.5	3.8	158.0
Health	8.9	2.2	0.0	0.0	6.7
Long-term care	5.0	0.0	0.0	0.0	5.0
Unemployment benefits	62.5	16.9	0.0	0.0	45.7
Accident insurance	7.3	0.0	0.0	0.0	7.3
Social Protection	19.3	0.0	7.8	11.5	0.0
Child Allowances	34.5	14.8	14.7	5.1	0.0
Family and Children	4.7	3.2	1.5		0.0
Other	6.8	4.7	0.8	1.3	0.0
Federal Special Fund	12.0	12.0	0.0	0.0	0.0
<b>Total cash transfers</b>	<b>427.5</b>	<b>136.8</b>	<b>46.2</b>	<b>21.7</b>	<b>222.7</b>

Source: National Accounts, author's own calculations



Table: Government revenues from shared taxes by layer of government (Federal/State/Local), Germany 2003 in million euros

Revenue type	<b>Federal</b>	<b>State</b>	<b>Local</b>
Income Tax (42,5/42,5/15)	71173	71173	25120
Income Tax (assessed) (42,5/42,5/15)	1942	1942	685
Profits tax (50/50/0)	5977	5977	0
Flat rate tax (44/44/12)	3358	3358	916
Corporate income tax (50/50/0)	4144	4144	0
VAT (49.48/48.45/2.07)	51044	49982	2135
Import turnover tax (49.48/48.45/2.07)	16741	16393	700
<b>Total tax revenue from shared taxes</b>	<b>154380</b>	<b>152969</b>	<b>29557</b>

Source: National Accounts 2003



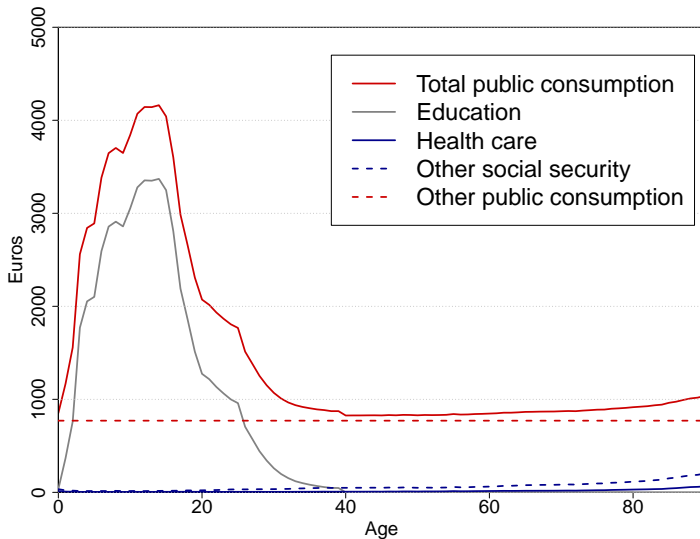
Table: Micro-profiles used to allocate government revenues according to age

Profile	Federal	State	Local
Income	Income tax Solidarity surcharge	Income tax	Income tax
Self-employed			Excise tax
Consumption	VAT Insurance tax Energy tax Electricity tax	VAT Motor vehicle tax Fire brigade tax	VAT
Capital	Corporate Income Tax Profits tax Flat rate tax Property tax Transfers of capital	Corporate Income Tax Profits tax Flat rate tax Property tax Inheritance tax Capital transfer tax Real estate transfer tax	Land Tax (Forestry) Land Tax (Other) Flat rate tax
Tobacco consumption	Tobacco tax		
Coffee consumption	Coffee tax		
Alcohol consumption	Spirits tax Alcopop tax Sparkling wine tax Other alcohol taxes	Beer tax Betting and lottery tax	
General tax profile	Market selling Other current transfers	Market selling Other current transfers	Second home tax Taxes dog owning

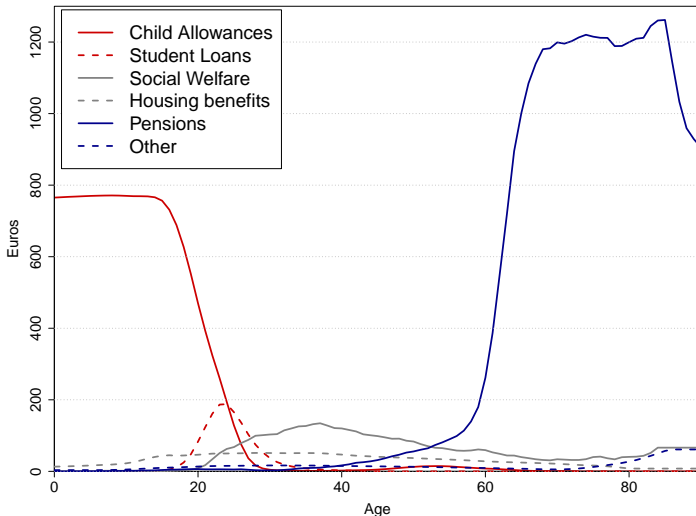
Source: author's own considerations



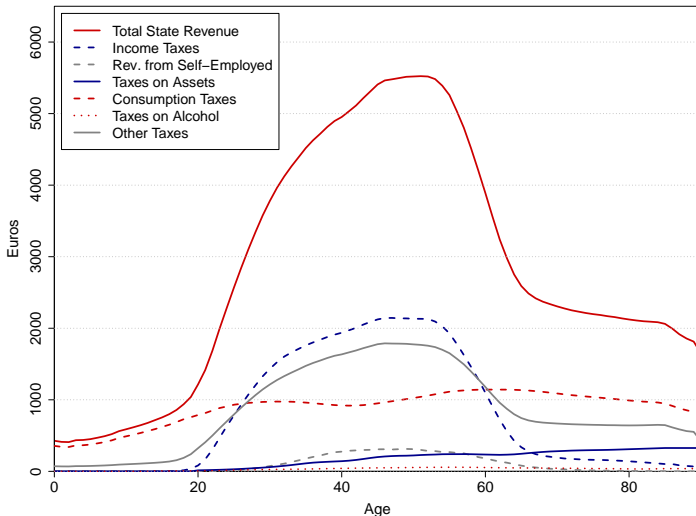
# Age Profiles of Public Consumption, Länder 2003



# Age Profiles of Monetary Transfers, Länder 2003



# Age Profiles of Government Inflows, Länder 2003



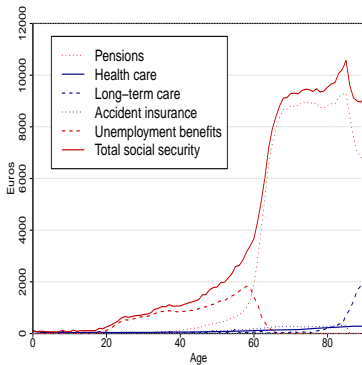


Figure: Social security

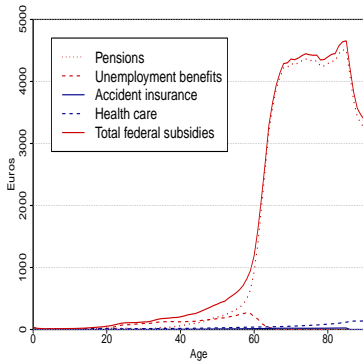


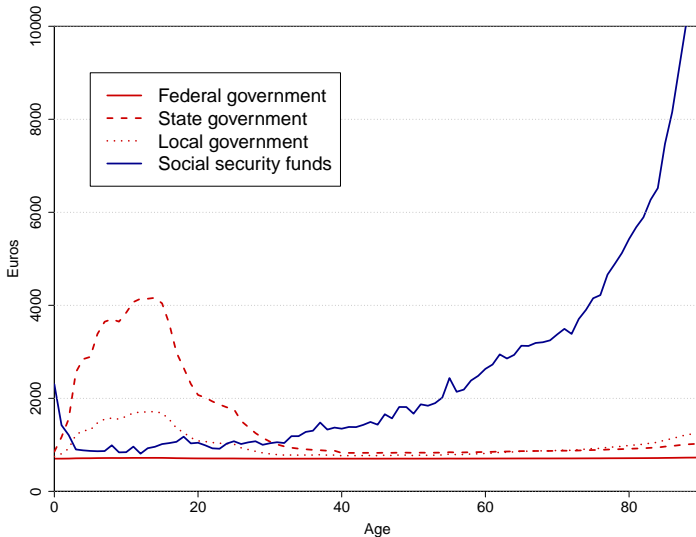
Figure: Federal subsidies

Source: author's own calculations based on publications by the Federal Statistical Office

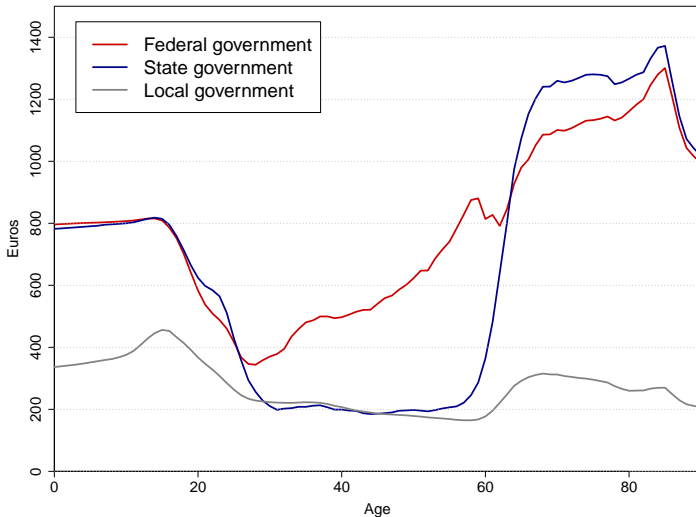




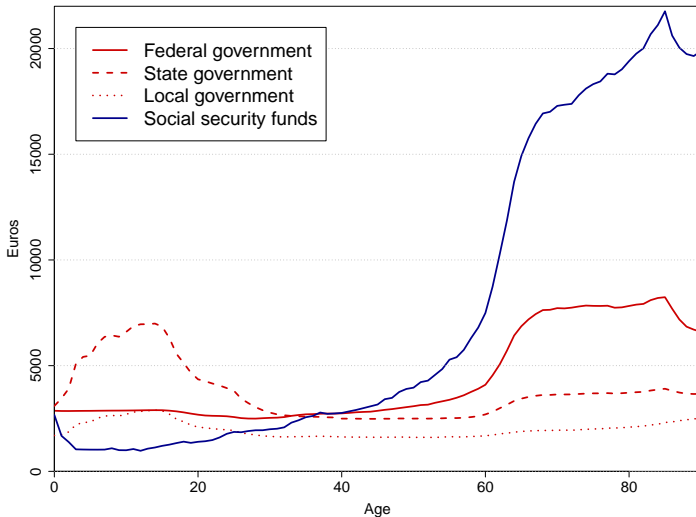
# Total Public Consumption, Germany 2003



# Total Cash Transfers, Germany 2003



# Total Transfers, Germany 2003



# Total Revenues, Germany 2003

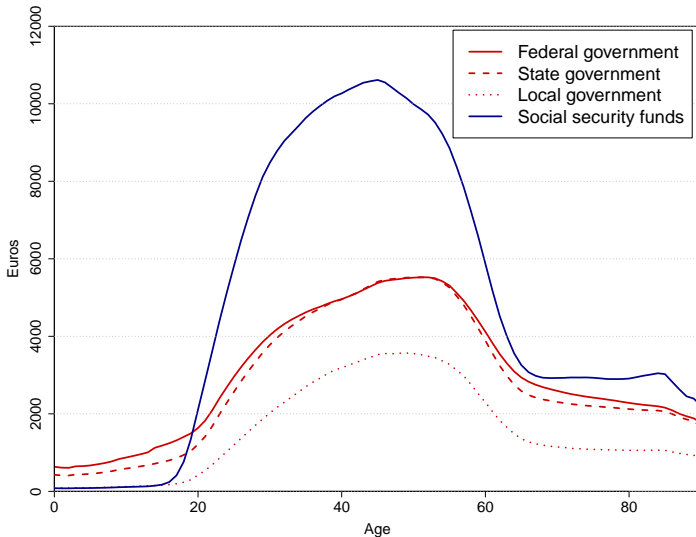


Table: Public consumption and monetary transfers by layer of government and social security, Germany 2003-2050, in billion euros

<b>Public Consumption</b>	2003	2020	2030	2040	2050
Federal government	46.81	45.36	43.89	42.10	39.44
State government	118.27	105.93	101.85	96.52	89.60
Local government	83.41	80.53	78.92	76.63	72.46
Social Security	168.36	185.20	189.32	193.68	188.28
<b>Monetary Transfers</b>					
Federal government	58.19	59.96	59.22	58.37	54.91
State government	46.24	47.70	49.93	50.00	47.23
Local government	21.71	20.79	20.16	19.35	18.00
SocSec	301.33	355.42	394.68	406.55	389.15

National Accounts 2003, 12<sup>th</sup> coordinated population projection, NTA estimates, author's own calculations



# Government expenditures in the future

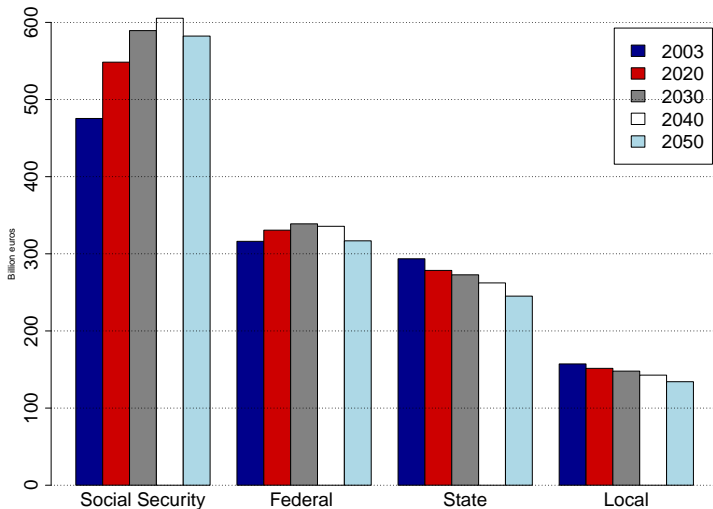


Table: Government revenues by layer of government and social security, Germany 2003-2050, in billion euros

	2003	2020	2030	2040	2050
Federal Government	276.62	268.92	251.52	237.90	220.59
State Government	260.80	253.76	236.37	223.80	207.42
Local Government	150.09	145.59	134.53	126.95	117.36
Social Security Contributions	467.24	443.52	407.60	384.03	355.52
<b>Total Government Revenue</b>	<b>1154.75</b>	<b>1111.79</b>	<b>1030.02</b>	<b>972.68</b>	<b>900.90</b>

Source: NTA estimates, Federal Statistical Office, author's own calculations



Table: Government expenditures, revenues and expected budget gap by layer of government, Germany 2003-2050, in billion euros and percent of GDP

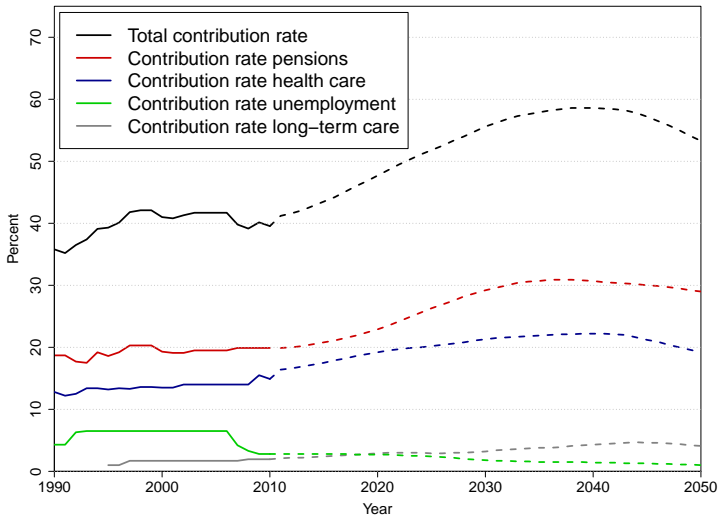
	in billion euros				in percent of GDP			
	2003	2020	2030	2050	2003	2020	2030	2050
Federal Expenditures	316	331	339	317	14.6	15.3	15.7	14.6
State Expenditures	294	278	273	245	13.6	12.9	12.6	11.3
Local Expenditures	157	152	148	134	7.3	7.0	6.8	6.2
Social Security Expenditures	475	548	589	582	22.0	25.4	27.2	26.9
Federal Revenue	277	269	252	221	12.8	12.4	11.6	10.2
State Revenue	261	254	236	207	12.1	11.7	10.9	9.6
Local Revenue	150	146	135	117	6.9	6.7	6.2	5.4
Social Security Contributions	467	444	408	356	21.6	20.5	18.8	16.4
<b>Federal Budget Gap</b>	-40	-62	-87	-96	-1.8	-2.9	-4.0	-4.4
<b>State Budget Gap</b>	-33	-25	-36	-38	-1.5	-1.1	-1.7	-1.7
<b>Local Budget Gap</b>	-7	-6	-13	-17	-0.3	-0.3	-0.6	-0.8
<b>Social Security Budget Gap</b>	-8	-105	-182	-227	-0.4	-4.9	-8.4	-10.5

Source: NTA estimates, Federal Statistical Office, author's own calculations





# Contribution Rates 2010-2050



- ▶ State and local governments can expect reduced expenditures.
- ▶ Social Security expenditures increase significantly as does the federal supplementary grant.
- ▶ Overall expenditures increase by 10 percent. At the same time revenues drop to an 80-percent level of today's values.
- ▶ Contribution rates for pensions, health and long-term care increase dramatically in this worst case scenario.



# Future Research

- ▶ OLG-Model with realistic demography and public and private transfers.
- ▶ Introduce a demographic factor into the fiscal equalization scheme.



# The End

- ▶ Thank you for your attention!
- ▶ Comments and Questions welcome.
- ▶ E-Mail: [kluge@demogr.mpg.de](mailto:kluge@demogr.mpg.de)



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