

REFORMING LONG TERM CARE IN GERMANY
A SIMULATION STUDY

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MOTIVATION

Long-term care budget projection for Germany

Year	1995	1999	2003	2010	2020	2050
Receipts (in bill. €)	8.4	16.3	16.8	–	–	–
Expenditure	5.0	16.4	17.6	–	–	–
Funds	2.9	5.0	4.2	–	–	–
Nursing cases (in 1000)	–	1.929	–	2.382	2.935	4.728
Contribution rate (in %)	1.7	1.7	1.7	1.9-2.0	2.2-2.5	3.5-5.6

Source: Federal Ministry of Health and Social Security, Schulz et al. (2001), Hof (2001, 197)

Reform options: Citizen Premium vs. Funding (Herzog Commission, Freiburg Model, Kronberger Kreis)

Related Literature: Fetzner et al. (2003), Häcker and Raffelhüschen (2004)

THE NUMERICAL GENERAL EQUILIBRIUM MODEL

- Individual life cycle with raising of children, work and retirement;
- Households work until age 60 and can live up to age 90;
- Children are born until age 45 and raised until age 66;
- CES-preferences for consumption and leisure; unintended bequest to children;
- Three income classes, natives and immigrants;

- Open economy model with population ageing;
- Cobb-Douglas production function with capital and labor,
- Government issues debt and levies progressive income taxes, corporate taxes and adjusts consumption taxes endogenously.
- Simultaneous public and private LTC system!

Table 1: Population Projection for Germany

Year	2004	2010	2020	2030	2040	2050	2100
Demographic assumptions							
Life expectancy (m.c.)	80.0	81.6	81.7	82.5	83.4	84.4	84.4
Fertility rate	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Net-immigrants (in 1000)	164.2	164.2	164.2	164.2	164.2	164.2	164.2
Total Population (in mio.)							
Official ^a	(82.4)	83.1	82.8	81.2	78.5	75.1	–
Model	81.5	82.4	82.4	80.5	77.7	73.0	59.6
Dependency Ratio (60+/20-59)							
Official ^a	(43.9)	46.0	54.8	70.9	72.8	77.8	–
Model	41.8	44.4	54.5	72.2	74.4	76.2	68.8

* Data in parenthesis refer to the year 2001 or 2002, m.c. middle class.

^a Federal Statistical Office of Germany (2003).

Table 2: Baseline path of the model

Year	GDP/Capital/ Employment index	Consump- tion tax	Contribution rates			LTC pre- mium (in €p.a.)
			Pen- sion	Health care	LTC	
2004	1.00	16.0	19.5	14.3	1.7	326
2010	1.11	15.9	19.1	14.5	1.7	394
2020	1.19	18.5	21.2	16.6	2.4	514
2030	1.20	20.0	24.1	19.5	3.0	602
2040	1.30	20.8	24.1	21.2	4.1	822
2050	1.37	21.4	24.8	22.2	4.7	988
2075	1.58	22.6	23.6	21.5	4.4	957
2100	1.89	23.4	21.9	21.1	4.1	896

Citizen Premium Model: Uniform LTC system, maximum contribution limit 2 %!

Table 3: Macroeconomic effects of the citizen premium model

Year	GDP/ Capital/ Employment index	Contribution rates		LTC Premiums with compensation			Consumption tax with without compensation	
		Pen- sion	Health care	top income	middle class	low		
2005	1.01	19.2	14.1	283	283	218	15.9	15.9
2010	1.12	19.1	14.3	324	324	218	15.9	15.7
2020	1.19	21.1	16.4	419	419	225	18.8	18.0
2030	1.20	24.1	19.2	492	492	228	21.0	19.4
2040	1.29	24.1	21.1	676	558	230	22.8	19.7
2050	1.36	24.8	21.8	789	560	231	24.1	20.5
2075	1.58	23.7	21.2	771	574	233	25.3	21.6
2100	1.88	22.0	20.9	725	577	231	25.8	22.4

Table 4: Welfare effects of the citizen premium model*

Birth year	With compensation			Without compensation		
	top income class	middle income class	low	top income class	middle income class	low
1920	0.20	0.16	0.25	0.21	0.10	-0.45
1930	0.17	0.14	0.23	0.23	0.10	-0.36
1940	0.16	0.14	0.23	0.27	0.12	-0.35
1950	0.05	0.16	0.02	0.26	0.17	-0.28
1960	-0.02	0.12	-0.02	0.26	0.20	-0.47
1970	-0.07	0.10	-0.04	0.24	0.28	-0.48
1980	-0.06	0.05	-0.02	0.23	0.30	-0.60
1990	-0.13	-0.03	0.01	0.25	0.37	-0.75
2000	-0.24	-0.04	0.06	0.29	0.52	-0.87
2010	-0.35	-0.02	0.06	0.32	0.60	-1.07
2020	-0.39	0.00	0.08	0.33	0.55	-1.32
2030	-0.41	-0.06	0.01	0.30	0.48	-1.42

*In percent of remaining lifetime resources.

Herzog Commission Model: Immediate increase in contribution rate to 3 %; Introduction of a funded system in 2030.

Table 5: Macroeconomic effects of the Herzog commission model

Year	GDP/Capital/ Employment index	LTC assets *	Contribution rates			Consump- tion tax
			Pen- sion	Health care	LTC	
2005	1.00	0.2	19.7	14.4	2.95	16.4
2010	1.11	3.9	19.2	14.7	2.95	16.3
2020	1.18	10.9	21.2	16.8	2.95	18.8
2030	1.23	18.2	23.1	18.7	0.00	19.6
2040	1.33	6.1	23.9	20.3	0.00	20.0
2050	1.38	0.7	24.7	21.3	0.00	20.9
2075	1.59	0.0	23.9	21.0	0.00	21.9
2100	1.89	0.0	22.2	20.6	0.00	22.7

* in percent of GDP.

Table 6: Welfare effects and premiums of the Herzog commission model

Birth Year	Welfare effects			Premiums*	
	top income class	middle income class	low	middle income class	low income class
1920	-0.19	-0.57	-0.85	–	–
1930	-0.17	-0.40	-0.61	–	–
1940	-0.15	-0.35	-0.54	600	600
1950	-0.01	-0.29	-0.40	600	600
1960	0.09	-0.28	-0.47	600	600
1970	0.12	-0.27	-0.48	600	600
1980	0.05	-0.24	-0.53	600	600
1990	0.05	0.13	-0.12	492	432
2000	0.08	0.85	0.64	309	271
2010	0.11	1.41	1.23	210	184
2020	0.07	1.40	1.17	211	185
2030	0.02	1.27	0.99	211	185

* in € per year.

Freiburg Model: Immediate introduction of a funded system; Premiums are restricted to 600 €; Contributions finance social assistance to elderly.

Table 7: Welfare effects and premiums in the Freiburg model

Birth Year	Welfare Effects			Premiums	
	top income class	middle income class	low	middle income class	low
1920	0.21	-0.39	-1.82	600	600
1930	0.12	-0.34	-1.45	600	600
1940	0.12	-0.31	-1.36	600	600
1945	0.03	-0.16	-0.77	600	600
1946	0.05	-0.93	-2.22	1027	888
1950	0.05	-0.80	-1.93	796	686
1960	0.10	-0.30	-1.02	516	444
1970	0.11	0.06	-0.35	346	300
1980	0.09	0.29	-0.01	233	204
1990	0.10	0.56	0.27	207	181
2000	0.13	1.05	0.76	208	183
2010	0.16	1.42	1.14	208	183
2020	0.15	1.47	1.20	210	184
2030	0.11	1.38	1.10	210	184

CONCLUSIONS

- Funding is preferred to civil premium model due to macroeconomic effects and implied intergenerational redistribution.
- "Herzog style" privatization offers smother transition compared to Freiburg model!
- Problem: Competition effects in LTC sector!