

The Effects of Hartz IV reform on precautionary savings

Eun Ah Whang¹

¹Department of Economics
Free University in Berlin

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- Precautionary Savings
 - Savings which occurs in response to uncertainty regarding future income

- Previous Works
 - While the results from theory in context of precautionary savings give us clear implications, empirical analysis for precautionary savings have shown mixed results.
 - Due to various and different measures for income uncertainty

- Direct Measure
 - Income Variance
 - Carroll and Samwick (1997), "Income variations", Strong precautionary motive/30-46 percent of total wealth accumulations
 - Subjective Measure
 - Lusardi (1998), "Subjective risk measure", Importance of precautionary savings
- Indirect Measure
 - Occupation/Industry dummies
 - Skinner (1998), "Occupational dummies", found no evidence of precautionary savings
 - Fuchs-Schundeln and Matthias Schundeln (2002), "Occupational group using civil servant dummies", Precautionary wealth amounts for 25 % of total wealth in Germany
 - Institutional Changes
 - Engen and Gruber (2001), "Using differences of the unemployment insurance program in each states", Found out crowd-out effects of unemployment insurance program on private savings

Hartz IV reform in 2005

- The last reform package of Hartz Reform I-IV
- Is used here as a measure of income uncertainty
- Hartz Reform
 - To activate German labor market, The first package came into force in 2002
 - Reform on Unemployment benefit I, II, in effective since 2005
 - Hartz IV reform generated benefit cut by large amount for household
- Enlarged income variances that people would face when they get unemployed.

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Institutional Background

	Before Reform		After Reform
UB	<ul style="list-style-type: none"> - Insurance oriented - Funded by contribution - Earning related (67% of net earnings for people who have at least one child, 60% for people who have no child) <ul style="list-style-type: none"> - limited duration 	UB1	Effective since 2006 <ul style="list-style-type: none"> - Funded by contribution - Earnings related (Replacement not changed) <ul style="list-style-type: none"> - Maximum benefit duration reduced for people whose age is over 55 years old.
UA	<ul style="list-style-type: none"> - Tax funded, means tested - Earnings related (57% for people with kids, 53% , for people without kids)	UB2	<ul style="list-style-type: none"> - Tax funded, means tested - Formal UA and SA were merged to UB2 which is newly designed for people who are capable of working
SA	<ul style="list-style-type: none"> - For whose income below subsistence level - Tax funded, means tested, flat rate, infinite duration 		

Table: Details of reform in 2005

Institutional Background

- Unlimited durations - one year based means-test
- Highest replacement rate among OECD countries (2003)
- Legally defined social minimum?
 - it depends on the number of household members/age of members/
includes cost for renting and heating up to certain amount.

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- Baseline: First difference model

$$S_{it} = \alpha_i + u_t + \gamma B_{it} + \delta X_{it} + e_{it} \quad (1)$$

$t = 0$ Before reform (year 2002)

$t = 1$ After reform (year 2007)

S_{it} Saving rate of i at t

B_{it} Expected benefit amount

X_{it} Control variables

- γ identifies an evidence of precautionary savings

- Extended model: Tobit random effects model

$$S_{it}^* = u_t + \gamma B_{it} + \delta X_{it} + v_i + e_{it} \quad (2)$$

$t = 0$ Before reform (year 2002)

$t = 1$ After reform (year 2007)

S_{it} Saving rate of i at t : 38 % saving data is left censored

v_i Random effects

- γ identifies an evidence of precautionary savings

- German Socio Economic Panel
 - Longitudinal survey of 11,000 Private HH from 1984-2012
- Year 2002/2007 is chosen for Asset information
- Data restriction
 - People in age between 20-65
 - Only household heads
 - Gainfully employed people,
 - Observations which exist both before and after reforms were used.
 - Saving rate is computed as household savings/household income, both are monthly measures.
- Censored saving data/Potential selection problems are covered as an extension

Data and Specification

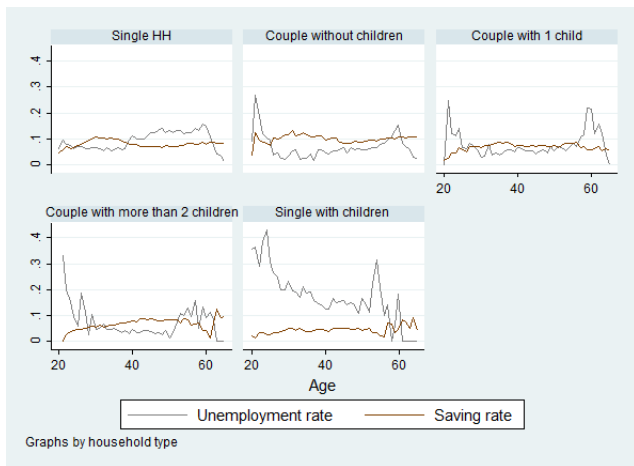


Figure: Saving and unemployment rate by household type

- Data description

Variable	Mean	Std.Dev
Saving rates	0.0825	0.105
Household income	2747.81	1833.13
Spouse's income	663.73	1144.07
Individual earnings	1656.16	1828.50
Rent (Tenant=1)	0.527	0.500
Gender (Female=1)	0.381	0.486
The number of Kids	0.537	0.780
Couple (Couple=1)	0.618	0.486
Region (West=1)	0.745	0.436
Education (years)	12.931	3.195
Age	46.301	10.755
Financial wealth	6371.79	75732.31

Table: Data description

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Before Reform

Benefit=Max(Unemployment assistance, Social assistance)

- UA: Individual net income*0.53(0.57)
- SA: Calculation based on description, (next slides, legally defined)

After Reform

- Legally defined social minimum (Sozialgesetz buch (SGB) Zweites Buch (II), Social code book II)
- Calculation based on description, (next slide, legally defined)

Social Minimum: Hartz IV

- Household social minimum by Hartz IV in 2005

	Claimant and Spouse	Other Household members		
	100% SR	Kids(-14yrs) 60% SR	Kids(15-18yrs) 80% SR	Kids(19yrs-) 90% SR
West inc. Berlin	EUR 345	EUR 207	EUR 276	EUR 311
East	EUR 331	EUR 199	EUR 265	EUR 298

Additionally per Household

- Transfer for lodging and heating

-(If the preconditions are fulfilled), a limited additional payment of up to EUR 160 for gainfully employed individuals and for their partners and up to EUR 60 for each child

Table: Calculation of Hartz IV

- Housing Support added: Munich 2004 Government guideline for tenants
- For tenants and house owner

Upper rent limits

Number of persons	Apartment size	Max. m2 price	Upper rent limit inc. heating and water
1	20-45	13.5	429.5
2	35-60	12.4	644.3
3	50-75	11.3	760.8
4	65-90	10.8	837.5
5	80-100	10.8	907.3
6	95-110	11	1,012.00
7	110-135	10.23	1,063.49

Table: Upper rent limits

Other household member's income

- If income of other household members who belong to "Needs unit" exceeds social minimum then one cannot claim benefits.
 - Every person living in the same household can be in "needs unit"
 - Burden of proof is at the claimants, not at the local authority
 - Thus, only spouse's income is considered
- Ineligible if Spouse's net income $>$ household social minimum

Wealth checks

- Ineligible If one's household asset $>$ Asset thresholds
- Range of assets: Generally all kinds of property which belong to the HH members and which could be exploited economically
 - Financial wealth: 200 Euro per year of life are protected max 13,000
 - Savings 750 Euro for each persons in Household are protected.
 - Life Insurance is also protected up to max. 13,000 as old age provision.
 - But in data, life insurance seems to be protected more flexibly
 - Its application in practice is by large at local agency's discretion
 - In Robust checks, Life insurance is considered
- Asset threshold barely changed by reform, rather became generous
 - The car is protected under the new eligibility rule

Benefit amount

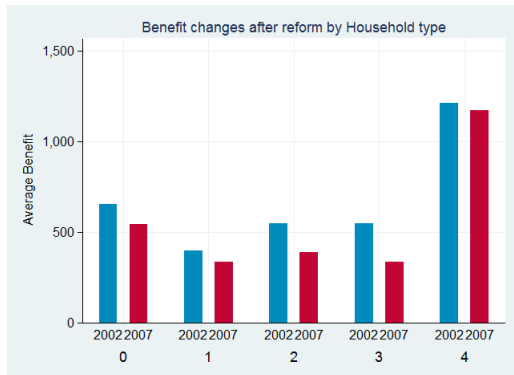


Figure: Benefit changes after reform by HH type, from own calculation

- HH 0: Single/ HH1: Couple without children/HH2: Couple with one child/HH3: Couple with more than two children/HH4: Single with children

Benefit amount

	Ineligible		Eligible		Mean
	The # of Obs	The # of Obs	Household Type	Amount of benefit	
Before reform	2265	3211	Type 1	785.27	1016.48
			Type 2	676.54	
			Type 3	843.86	
			Type 4	868.58	
			Type 5	1283.11	
After reform	2503	2972	Type 1	576.51	870.66
			Type 2	532.57	
			Type 3	580.24	
			Type 4	535.47	
			Type 5	1209.31	
Total	4768	6183			10951
Changes in benefit		The # of Obs	Proportion		
Increase in benefits		1225	0.224		
Decrease in benefits		1982	0.362		
Unchanged	Always ineligible	1618	0.296		
	Same amounts	650	0.119		

Figure: The number of Obs and Mean value of simulated benefits

- Sensitivity Checks

- ✓ Case when Spouse is also unemployed
- ✓ Including (estimated) unemployment risk variable
- ✓ Life insurance is added in consideration of eligibility
- ✓ Heckman two step to check selection bias

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Basic results

VARIABLES	(1)	(2)
	First Difference	Random To bit
Benefits	-0.0204*** (0.00185)	-0.0331*** (0.00281)
Household income	0.0187*** (0.000631)	0.0266*** (0.000994)
Spouse income	-0.00304*** (0.00104)	-0.00568*** (0.00148)
Kids in age between 0 14	-0.0165*** (0.00565)	-0.0211** (0.00821)
Kids in age between 15 18	-0.0148*** (0.00461)	-0.0166** (0.00663)
Kids in age over 19	-0.0171*** (0.00168)	-0.0223*** (0.00258)
Couple	-0.00353 (0.00245)	0.00715* (0.00404)
Region (East 0, West 1)	-0.0112*** (0.00220)	-0.0103*** (0.00390)
Nationality (German 0, Other 1)	-0.00313 (0.00382)	-0.0153** (0.00697)
Sex (Male 0, Female 1)	-0.00563*** (0.00199)	-0.0110*** (0.00366)
Rent (Own 0, Rent 1)	-0.00970*** (0.00217)	-0.0114*** (0.00357)
Years in education	0.00200*** (0.000310)	0.00395*** (0.000545)
Age	-0.000280*** (0.000105)	-0.000859*** (0.000175)
Net financial asset	0.0221*** (0.00124)	0.0215*** (0.00182)
Observations	10,909	10,909

Table: Baseline results

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors are in parentheses.

- Expected sign and significance was found from most of coefficients
- Savings increases with HH income and decreases with Spouse's income
- HH with kids are less saving than HH without ones.
- Benefit amount has significant/negative relationship with saving rates.
- Increases in benefit amount by one unit lowers the saving rate by 2 percent point.
- Marginal effect of Benefit amount in Tobit model gave 2.98 percent point.

	Model (1)	Model (2)	Model (3)	Model (4)
	Spouse unemployed	Inc. unemployment risk	Inc. Life insurance in eligibility	Heckman 2 step model
Benefits				
First difference	-0.0105*** (-5.57)	-0.0119** (-2.66)	-0.00944*** (-4.02)	-0.0154
Tobit model	-0.0230*** (-17.00)	-0.0264*** (-9.17)	-0.0264*** (-15.21)	(-0.94)
IMR				-0.0253 (-1.85)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. T-statistics and Z-statistics are in parentheses.

Table: Sensitivity checks

- Benefit amount of Unemployment Benefit II has significant negative relationship with saving rates
 - Increase in Benefit by one unit lowers the saving ratio by 2.04 pp.
 - Depending on specifications, saving ratio increases up to by 2.98 pp.
- The estimated effect is quite small compared to previous findings,
 - The effects of public pensions on financial assets , for additional dollar,
 - 30-50 cents decreases in savings, Feldstein(1974), 23-44 cents decreases in financial assets, Rochwedder(2009)
 - But not negligible.
- The results are robust.

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- The changes of benefit amount from Unemployment benefit II affects to precautionary savings for Household
- The magnitude of effects is small but we can conclude Hartz IV reform in 2005 imposes financial pressures on households.

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