#### 27<sup>th</sup> International Congress of Actuaries

#### Critical Issues in German Income Replacement Insurance

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#### Income Replacement in Germany

Employees in the first six weeks of a sickness: **Continued pay by the employer** EUR 25,142 million

grade of inability to work	Statutory Insurance	Private Insurance
<b>temporary</b> : daily allowance insurance	Health funds: EUR 5,982 million	Health insurance companies: EUR 685 million
<b>constant:</b> disability insurance	pension insurance fund: EUR 16,523 million	Life Insurance Companies: EUR 1,176 million

Year 2000

# Insurance of temporary inability to work

Private Insurance (health insurance)
After the agreed number of weeks:
the insured daily allowance, but not more than the net income
maximum : until the entry of occupational disability

# Private Insurance of temporary inability to work (Health insurance)

Standard terms	Non standard terms
General tariff	Tariff splitting
+ extra premium for special professions	according to groups of profession or according to full / supplementary private health cover

**Problem:** Underwriting for short elimination periods

#### Statutory insurance of constant inability to work

Class	Condition
<b>Full reduced earning capacity</b> : Full Pension	Unable to work <b>3</b> hours a day under the conditions usual on the general labour market
<b>Partial reduced earning capacity</b> : Half Pension	• Unable to work <b>6</b> hours a day under the conditions usual on the general labour market <b>or</b>
	• Born before 1961 and unable to work <b>6</b> hours a day in the <b>existing</b> occupation or in other work that can reasonably be expected to be accepted ("occupational disability") 5

## Private insurance of constant inability to work (Life insurance)

Class	Condition
<b>Invalidity</b> : insured invalidity pension	Constantly and completely unable to do any work
occupational disability:	At least to 50 per cent unable to work in the usual occupation
insured disability pension	6

# Private occupational disability policies (Life insurance)

Standard terms	Non standard terms
Abstract relegation:	No abstract relegation:
payment, if	payment, if
the insured is unable to work in his profession <b>or</b> in a profession in which he has training and experience and which is in accordance with his former walk of life	the insured is unable to work in his profession <b>and does not</b> work in another profession, which is in accordance with his former walk of life

# Private occupational disability policies (Life insurance)

Standard terms	Non standard terms
Premium adjustment:	Premium adjustment:
not possible	possible, if
	<ul><li>the bases of calculations change</li><li>a trustee approves it</li></ul>
General tariff	Tariff splitting
<ul> <li>+ extra premium for special professions</li> </ul>	according to groups of profession

# Private occupational disability policies (Life insurance)

Standard terms	Non standard terms
Disability to work	Disability to work
—	—
At least to 50 per cent unable to work in the usual occupation	Unable to work at least <b>x</b> hours a day under the conditions usual on the general labour market
<b>Elimination period</b> not possible	Elimination period can be stipulated

#### Calculation of private insurance

<b>Constant</b> inability to work: <b>Life</b> insurance	<b>Temporary</b> inability to work: <b>Health</b> insurance
Biometrical bases of calculations:	Biometrical bases of calculations:
•mortality	•mortality
•probability i <sub>x+t</sub> of getting invalid	•expected number K <sub>x+t</sub> of days of inability per year
<ul> <li>probability of reactivation</li> </ul>	
Present value of benefits:	Present value of benefits:
$\sum_{t=0}^{n} D^{a}_{x+t} * i_{x+t} * a^{i}_{x+t n-t}$	$\frac{\sum_{t=0}^{n} D_{x+t} * K_{x+t}}{D_{x+t}}$
D <sup>a</sup> <sub>x</sub>	D <sub>x</sub> 10

#### Calculation of private insurance

<b>Constant</b> inability to work: <b>Life</b> insurance	<b>Temporary</b> inability to work: <b>Health</b> insurance
In times of inability:	In times of inability:
•no premium payment	<ul> <li>continued premium payment</li> </ul>
•increased reserve	•normal reserve
Premium adjustment:	Premium adjustment:
•not possible or very restricted	•regular test of premium sufficiency and premium adjustment for the whole portfolio
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