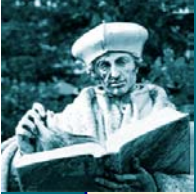# Risk sharing between sickness funds and primary care physicians

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Data

- 1999 data of one Dutch sickness fund, combined with 1998 data on pharma-ceuticals

- In total: 592,694 enrollees

- Subgroup: 549,733 enrollees
  Physician at least 250 enrollees

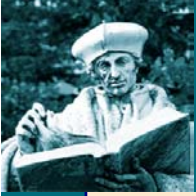- Subgroup: 396 primary care physicians
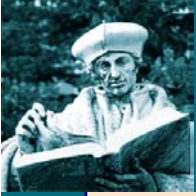
Econometric models

First pair:

$$\text{Cost}_j = f \left(\text{Age}_{i*j}, \text{Gender}_{i*j}, \text{Urbanisation}_{i*j}, \text{LegalGround}_{i*j}, \text{Extension} * \text{PCG}_{i*j} \right)$$

Second pair:

$$\text{Pharma}_j = f \left(\text{Age}_{i*j}, \text{Gender}_{i*j}, \text{Urbanisation}_{i*j}, \text{LegalGround}_{i*j}, \text{Extension} * \text{PCG}_{i*j} \right)$$

Results

First pair:
- Adj. R^2 for model 1:   4.7%
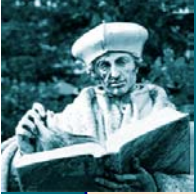- Adj. R^2 for model 2:   7.9%

Second pair:
- Adj. R^2 for model 3:   5.5%
- Adj. R^2 for model 4:   14.5%

Example of model 1 and 2

Primary care phy-sician	Actual total costs	Overall average costs	Predicted costs by model 1	Predicted costs by model 2	Lower bound model 2	Upper bound model 2
A	1,046	1,160	1,003	1,060	929	1,191
B	1,617	1,160	1,185	1,238	1,021	1,454

Further research

- Include risk factors for race and ethnicity, quality, income, education and DCGs

- Use multiple years separately and as panel

- How to construct a bonus from the prediction of the costs?
  - linear / nonlinear
  - level
  - boundaries