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Health Services Research (Versorgungs- und Implementierungsforschung)

Health economics as an interdisciplinary discipline in health services research

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Some of our projects involving physiotherapy in the last 15 years...

1. Development of prospective-payment system for inpatient rehabilitation
→ ST Reha and additional studies
2. Pilot study on highly intensive robotics assisted rehabilitation
→ a cost description study
3. Falls prevention program consisting of a home visit by a physiotherapist / occupational therapist
→ a cost-effectiveness evaluation
4. What are the drivers behind rapidly rising costs of outpatient physiotherapy?

Typical health economic questions include...

What should be the **price** of an hour of PT?

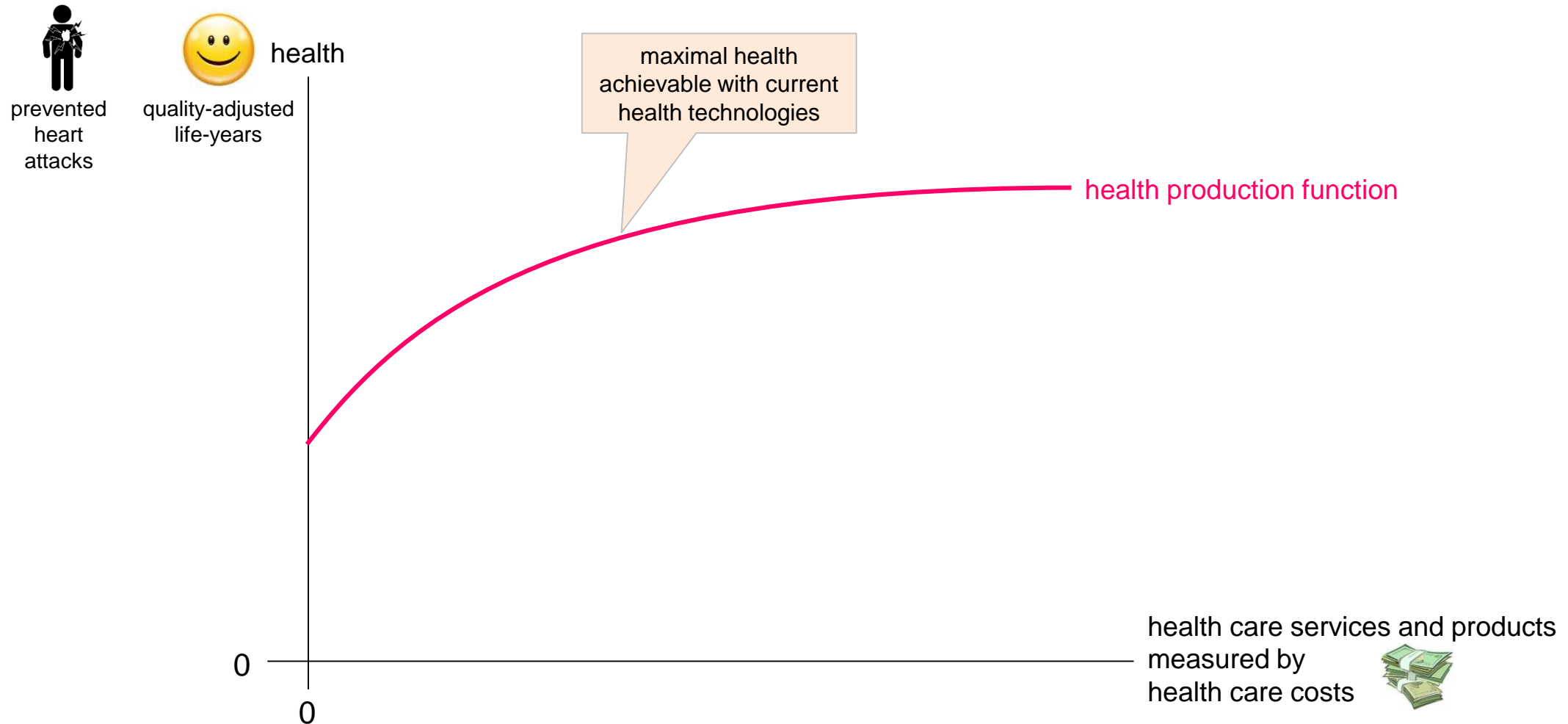
How should we **finance** PT with social health insurance?

What is the **value** of a PT treatment?

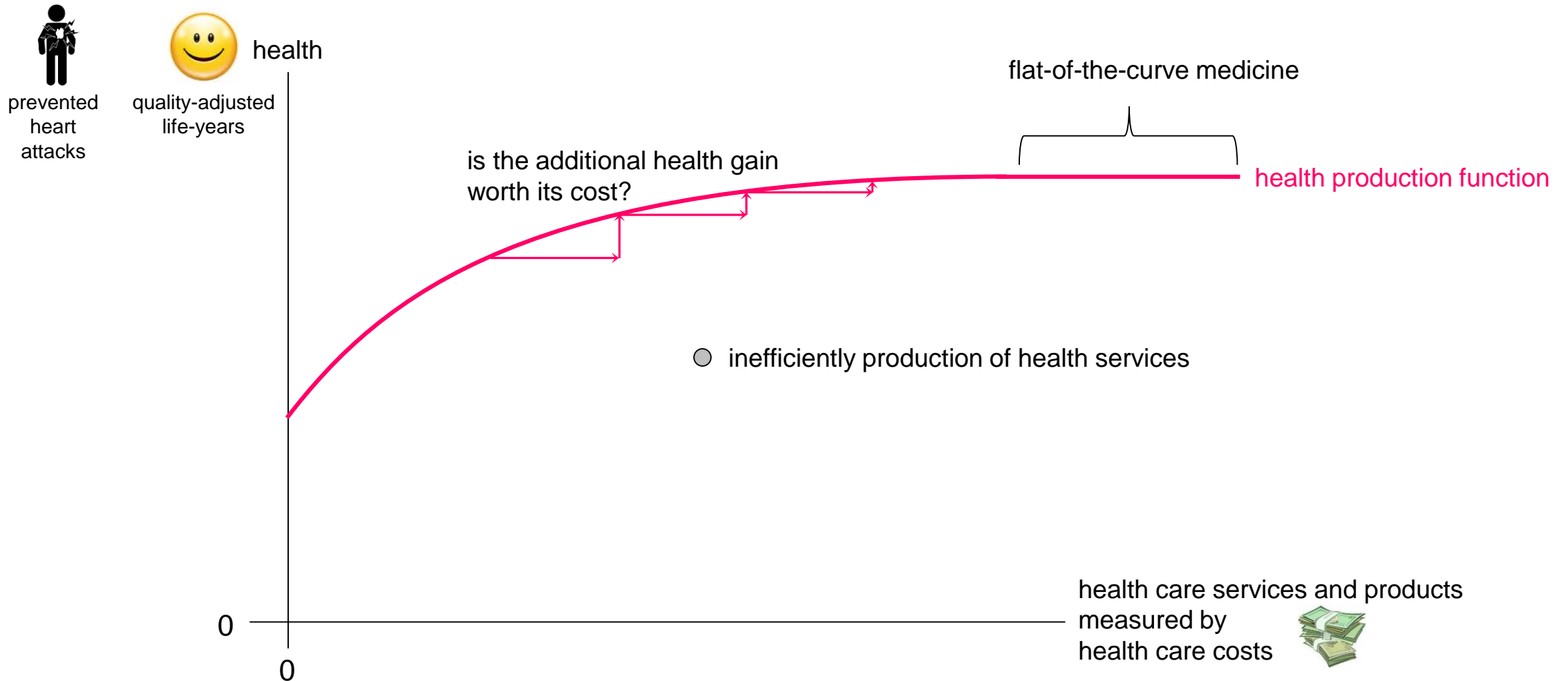
Is an organized PT-intense program LBP patients **worth its price**?

Why does **spending** on PT increase?

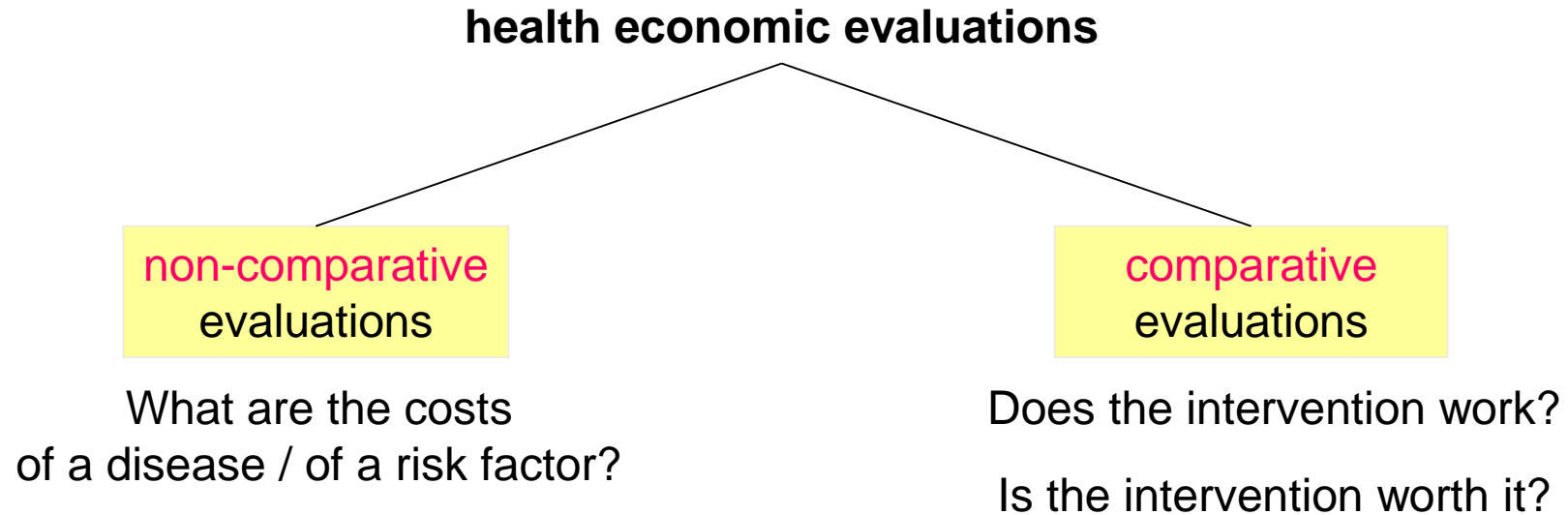
Health economics is about economics and health



Health economics is often focussing on efficiency



Types of health economic evaluations



Key questions of comparative health economic evaluations

Can it work? Does it work?

- **Efficacy** (in a randomized control trial)
- **Effectiveness** (in real world conditions)

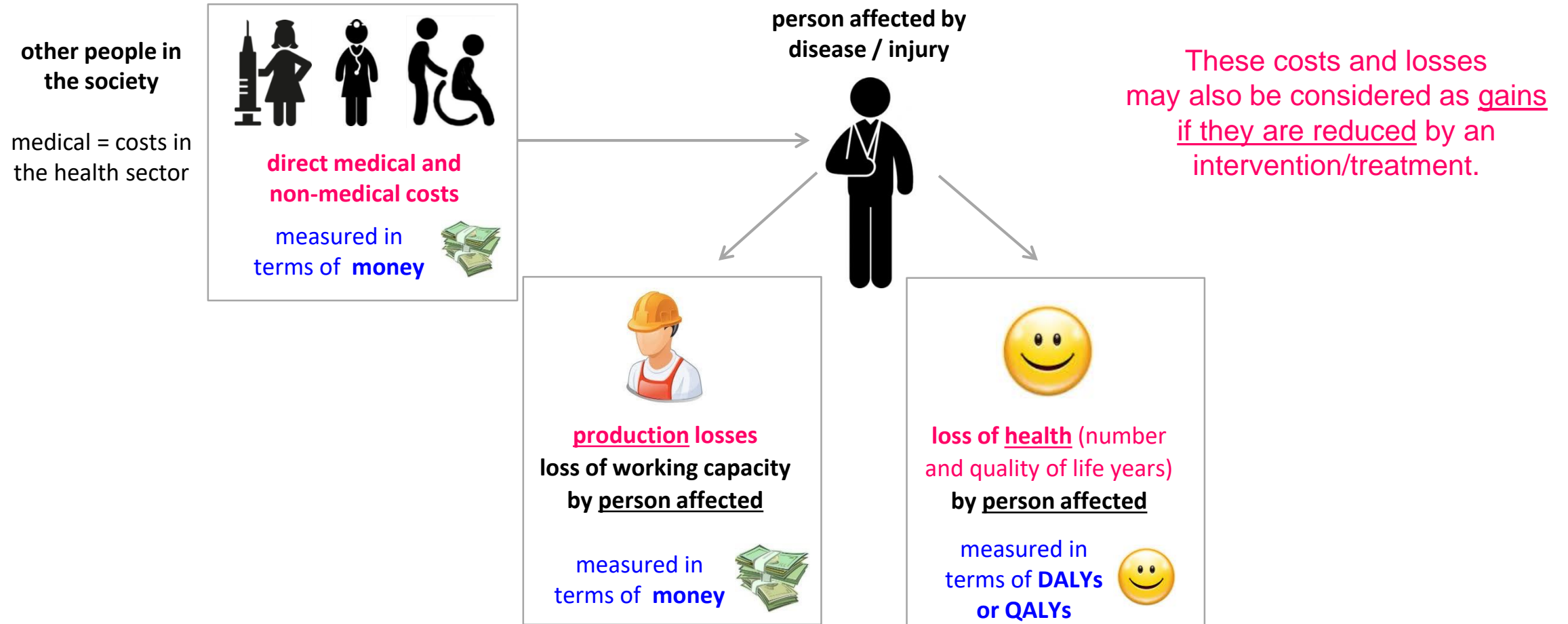
Is it worth it?

- **Cost-effectiveness** (e.g. cost of a life year gained)

Can we afford it?








- **Budget impact** (e.g. total cost for social health insurance)

Cost and outcome categories in health economic evaluations

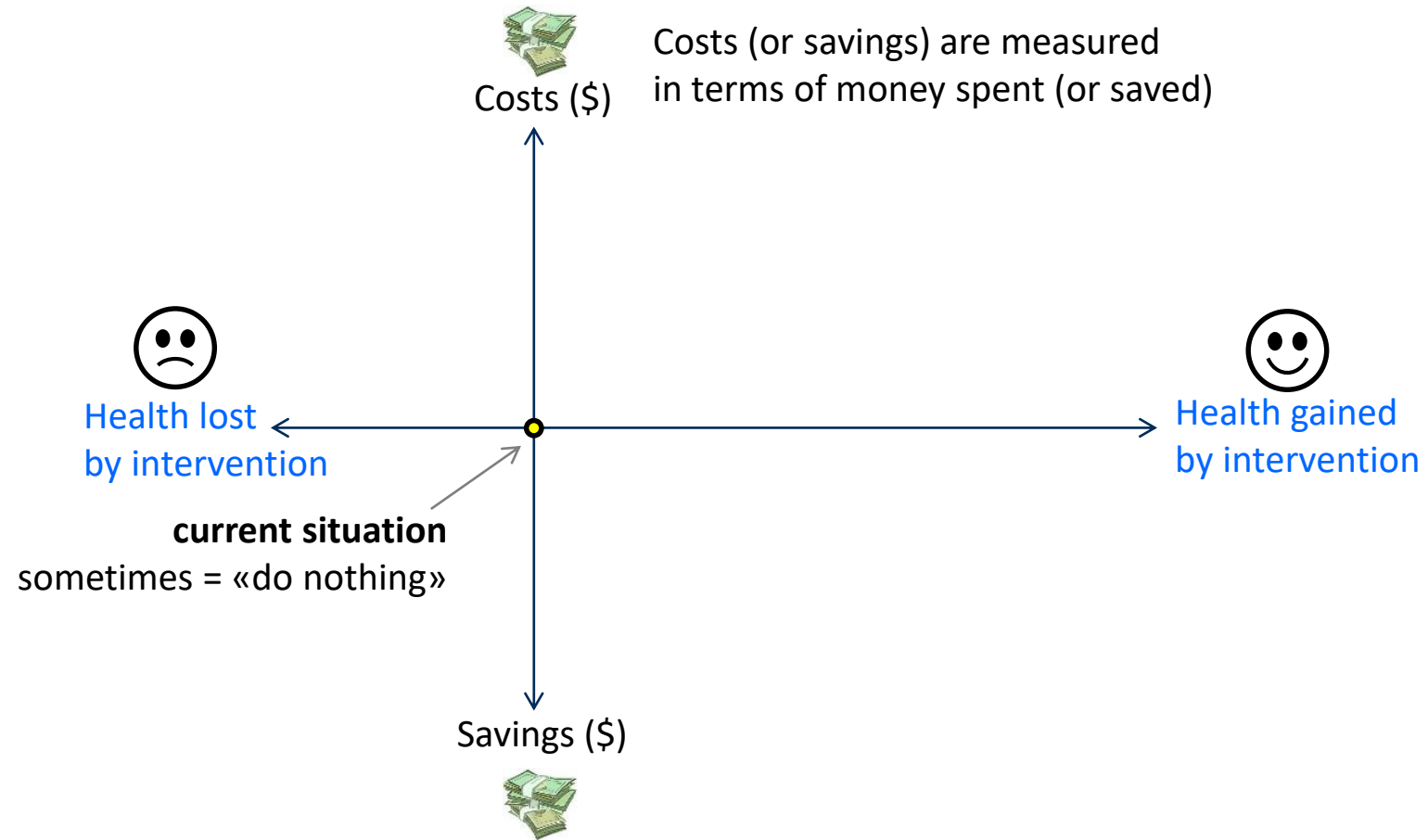


DALYs = Disability Adjusted Life Years
QALYs = Quality Adjusted Life Years

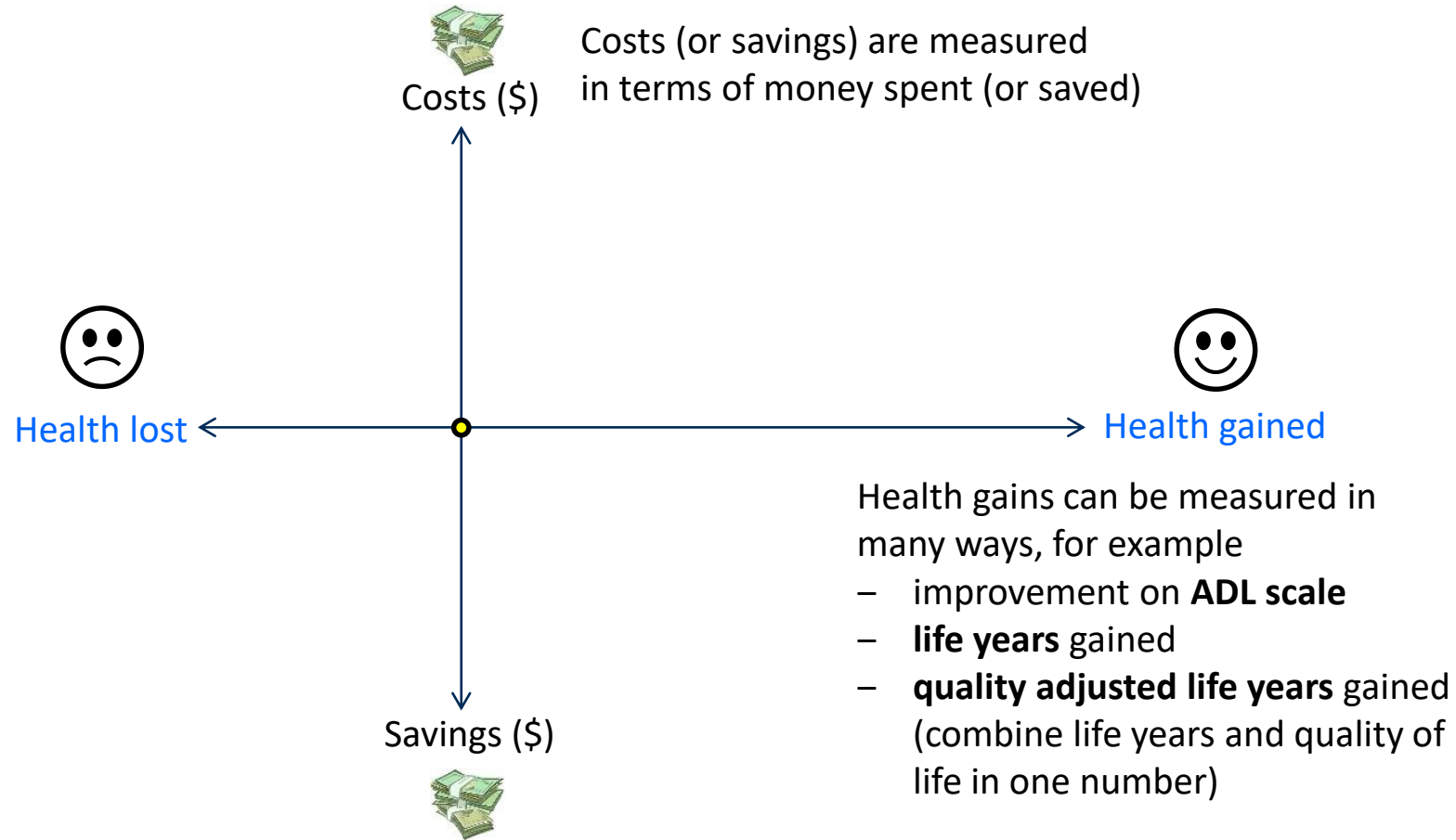
Types of comparative health economic evaluations differ by how the health effect is measured

	measure of cost	measure of health effect
cost-minimization analysis	money 	assumption of same effect
cost-effectiveness analysis (CE)	money 	natural units of one kind (e.g. life years gained or cases averted) 
cost-utility analysis (CUA)	money 	quality adjusted life years (DALYs or QALYs) 
cost-benefit analysis (CBA)	money 	money 

The 2 dimensions of health economic evaluations

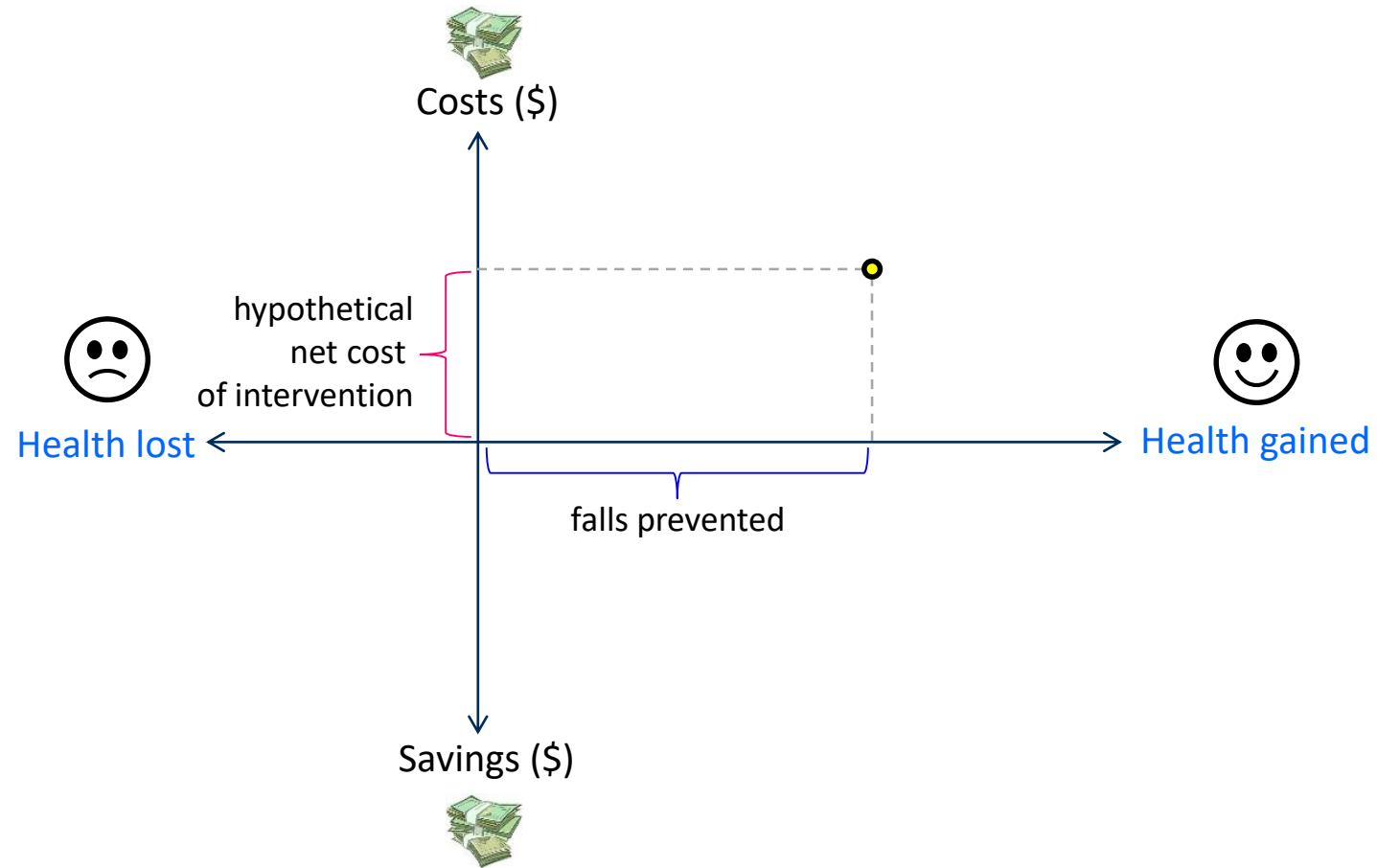


The 2 dimensions of health economic evaluations



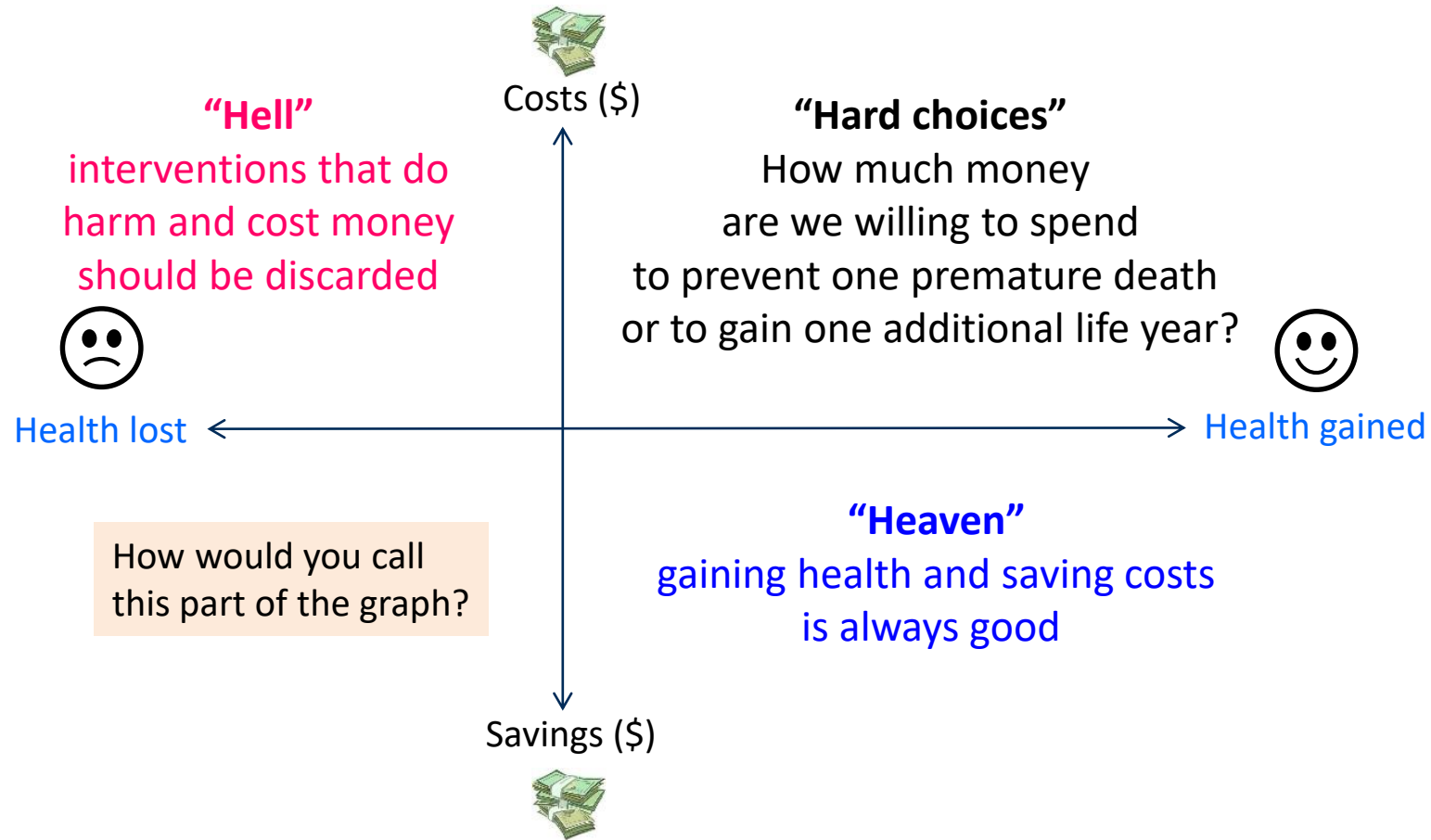
Is it worth it?

Combining health gains with net intervention costs



Is it worth it?

Between heaven, hell and hard choices



Example of a cost-effectiveness evaluation of a falls-prevention program of the Rheumaliga

K. Niedermann, A. Meichtry, M. Ernst,
I. Nast, M. Wirz (Dep G ZHAW)
B. Zindel, V. Krafft (League Against Rheumatism)
B. Brunner, R. Mattli, S. Wieser (WIG ZHAW)

Research questions for health economic part of the study

- What is the **price of prevented fall**?
- Does the falls-prevention program **save money**?

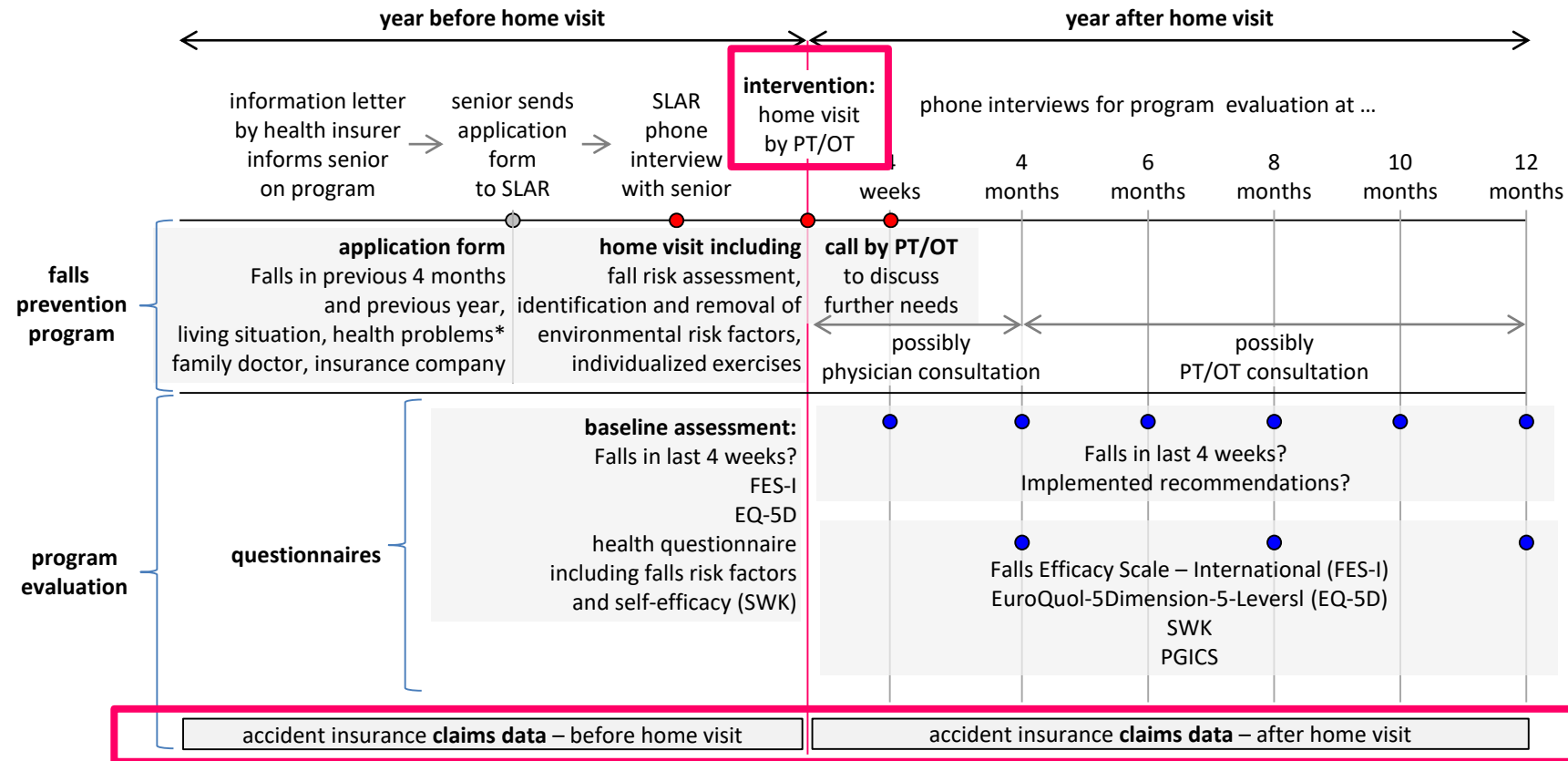
Approach

- Compare the net **cost of the of the intervention** from the perspective of the accident insurer with the **number of prevented severe falls**.
- A severe fall is a fall requiring medical care.

Data

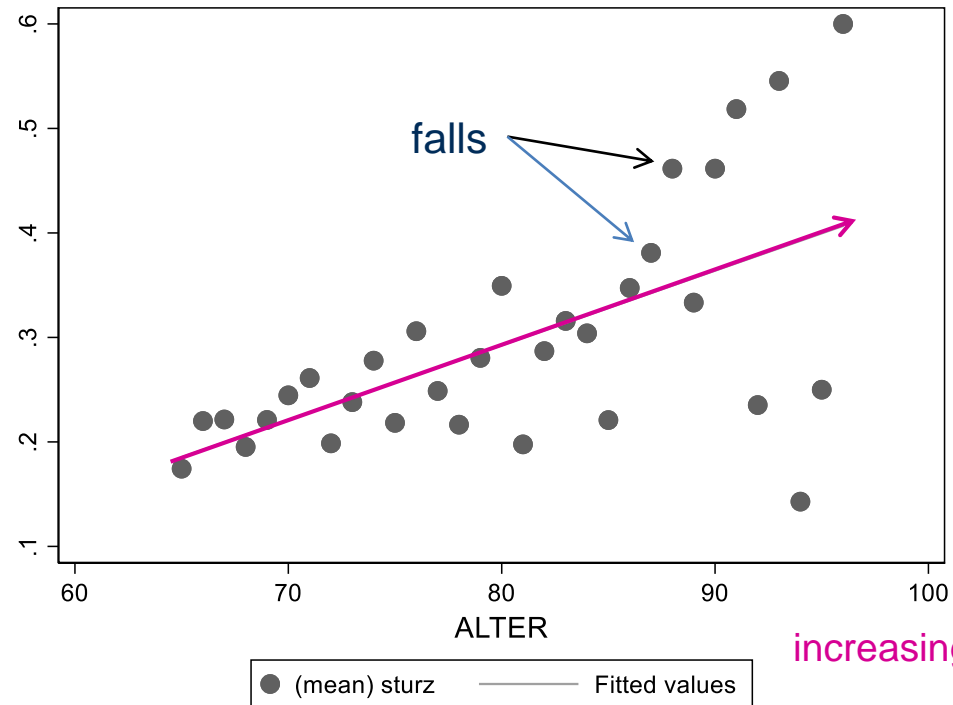
- Cost of the prevention programme.
- Number of severe falls in the year before and after the PT-intervention and respective costs.

Study overview



We also consider the increasing probability of falls, as participants get older

probability of a fall

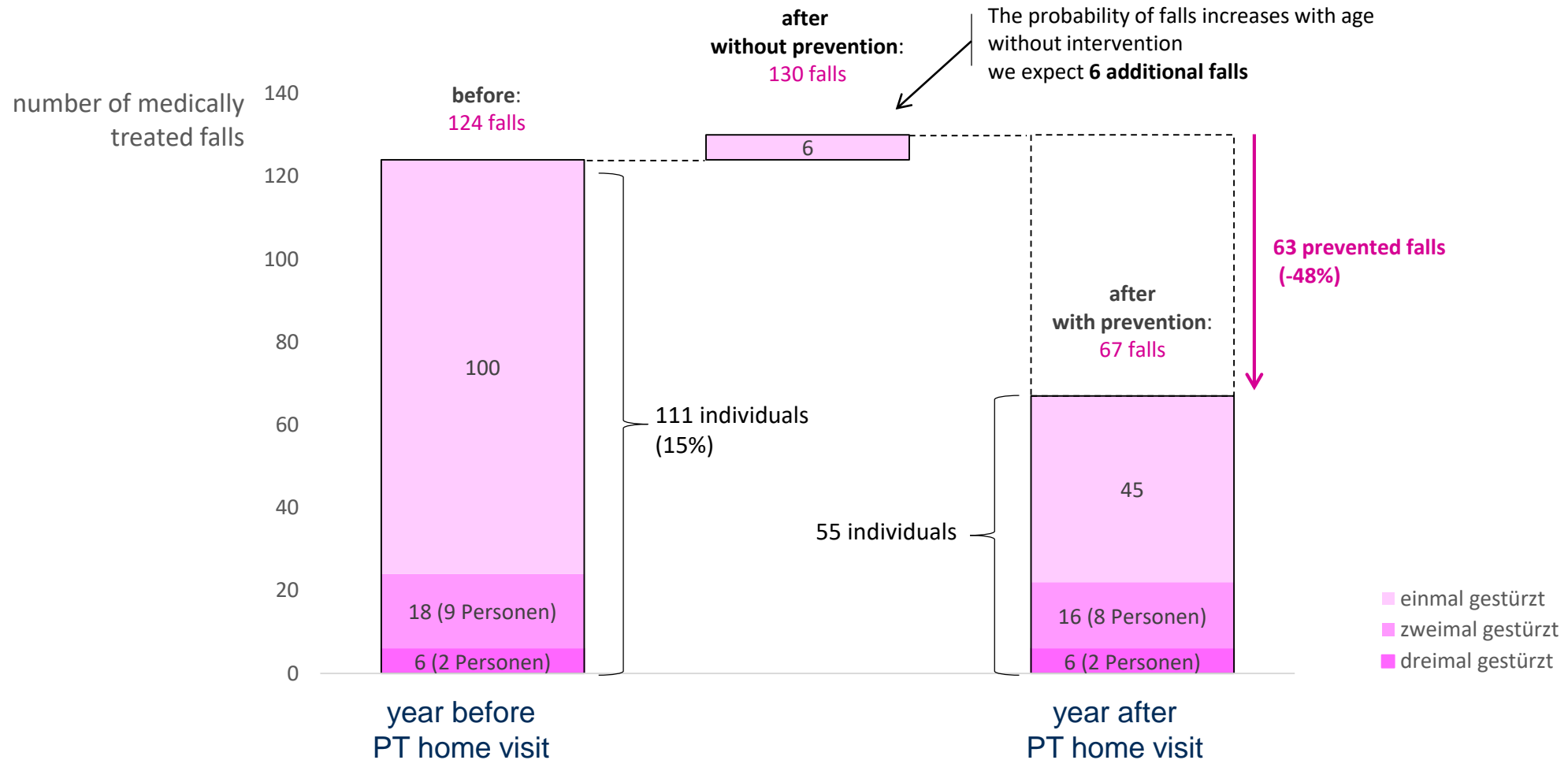


Estimation based on Swiss Health Survey 2021

Result:

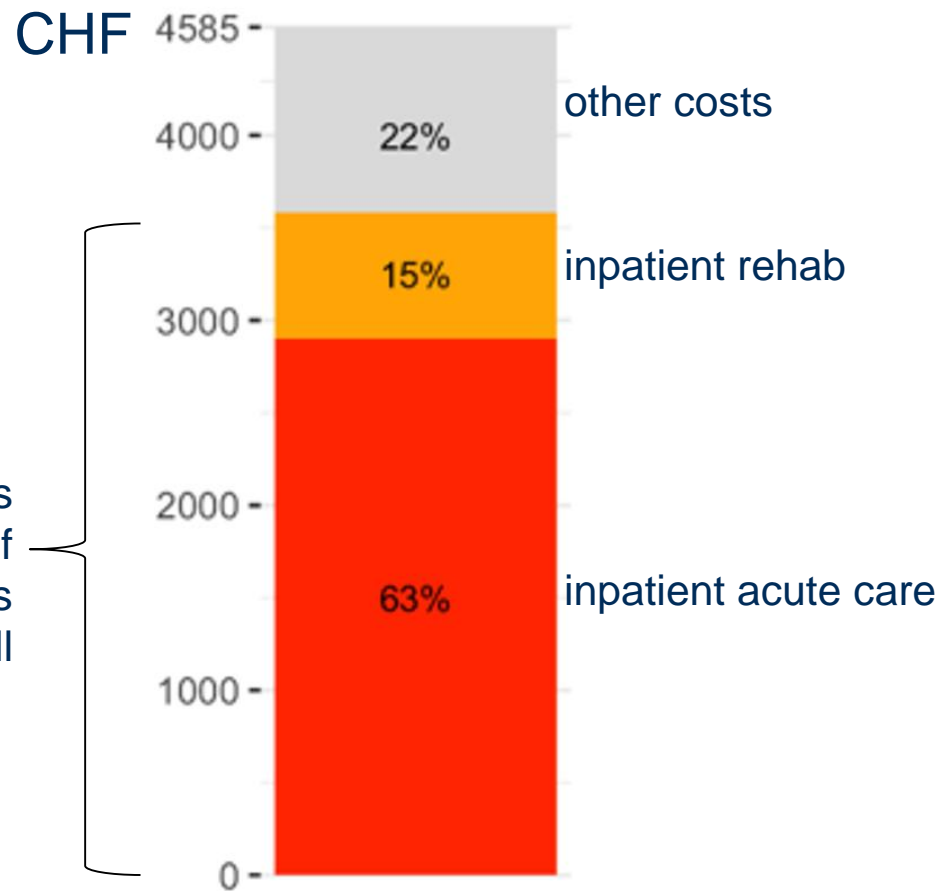
The probability of a fall increases by 0.7 with every year of increasing age

Main result: The number of severe falls diminishes substantially



The program prevents costs of CHF 388 for each participant (95% CI: 228; 504)

average accident insurance costs
in the first 2 months after the fall



$$\frac{63 \text{ prevented falls} \times \text{CHF } 4600 \text{ per fall}}{741 \text{ participants}}$$

What is the price of a prevented fall?

CHF 500
program costs

—

CHF 388
prevented care costs

=

CHF 112
net cost per participant

CHF 112
net cost per participant

×

741
participants

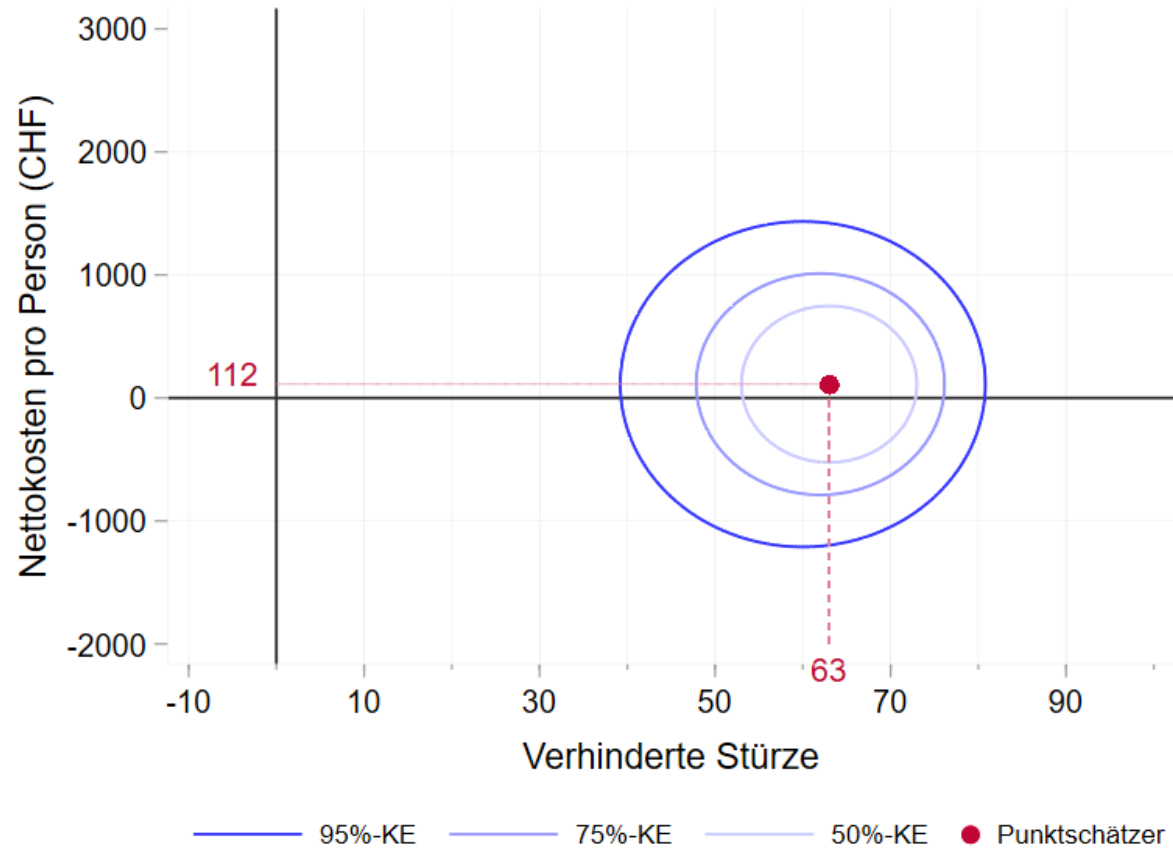
=

63
prevented falls

CHF 1317
per prevented Fall

Is this a good deal?

Sensitivity analysis shows a probability of the program being cost-saving of nearly 50%

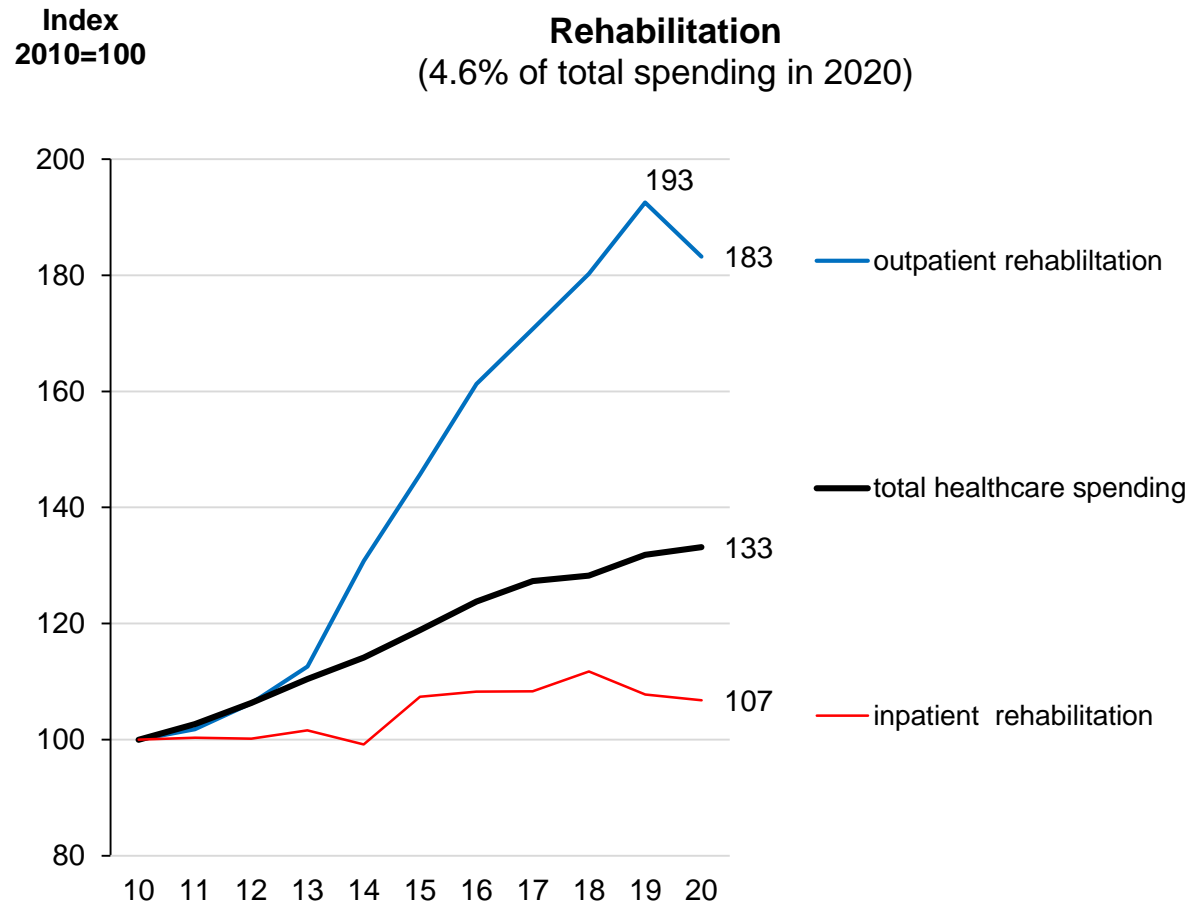


Where do physiotherapists appear in health care spending statistics...

total health care spending in Switzerland in 2020 amounted to CHF 83.1 bn

inpatient long-term care (nursing homes), 14.2 (17%)			inpatient psychiatric care, 2.1 (2.5%)		prescription drugs, 7.3 (8.8%)	
inpatient acute care, 14.2 (17%)			inpatient rehabilitation, 1.8 (2.2%)		over-the-counter drugs, 1.9 (2.3%)	
					inpatient drugs, 0.5 (0.7%)	
					therapeutic devices, 2.1 (2.6%)	
outpatient hospital care, 6.4 (7.6%)			outpatient managed care, 4.2 (5%)		consumable material, 0.8 (1%)	
			outpatient physicians, 3.2 (3.8%)		other supportive services, 2.2 (2.6%)	
					research and education, 1.3 (1.5%)	
			outpatient long-term care, 3.0 (3.6%)		administration, 3.4 (4.1%)	
			laboratories, 1.7 (2%)			
dental care, 4.5 (5.4%)			outpatient psychiatric care, 1.4 (1.7%)		prevention, 3 (3.6%)	
			outpatient rehabilitation, 2.0 (2.4%)			
			radiology , 1.1 (1.3%)			
			transportation & rescue, 0.5 (0.6%)			
			other curative therapies, 0.5 (0.6%)			

Outpatient rehab is growing at a rapid pace while inpatient rehab doesn't seem to increase much



Project on the cost and value of physiotherapy in Switzerland

Igor Francetic (University of Manchester)
Carlo De Pietro, Alessandro Schneebeli (SUPSI),
Joachim Marti, Anna Nicolet (Université de Lausanne)
Brigitte Wirth, Simon Wieser (ZHAW)
Sophie Brandt (Universität Luzern)

What are the **drivers behind** the strong **of spending increase** for outpatient PT?

What is the **value of PT** for the Swiss health system?

Is PT **over- or underused** comparing with what be best from a social perspective?

Ranking for online survey – What are the main cost drivers?

1. Changes in demographic structure (ageing society)
2. Shift from inpatient to outpatient
3. Shorter length of hospital stays due to DRG incentives
4. Higher uptake of conservative treatment instead of operation
5. Prescription patterns from physicians
6. Changes in societal expectations towards right to access to healthcare and need for physiotherapy
7. Financial and reimbursement mechanisms and incentives for physiotherapists
8. New physio practices generating new patients (i.e., new demand)
9. Others?

Ranking for online survey – Benefits (What does physiotherapy add?)

1. Improvements in health outcomes (e.g., pain reduction, posttreatment after surgery)
2. Social benefits (improved social support, decreased isolation)
3. Improvements in Health-Related Quality of Life
4. Delaying functional decline and entry in care home for older adults
5. Decrease of work absenteeism
6. Broad range of physiotherapy service beyond medical (e.g., education, motivation, advice)
7. Release of the overload for primary care providers
8. Cost-effective alternative to numerous interventions (e.g., surgery)
9. Others?