

An Overview of Health Economics for Non Economists

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Structure

- Introduction to Some Basic Concepts
- Health Markets/Market Failure
- Aspects of Health Financing
- Key Health Sector Concerns of Economists/Health Economists
- Key Reading/Glossary

Definition

- ***Health economics***: the study of how scarce resources are allocated among alternative uses for the care of sickness and the promotion, maintenance and improvement of health, including the study of how health care and health-related services, their costs and benefits, and health itself are distributed among individuals and groups in society.

World Bank

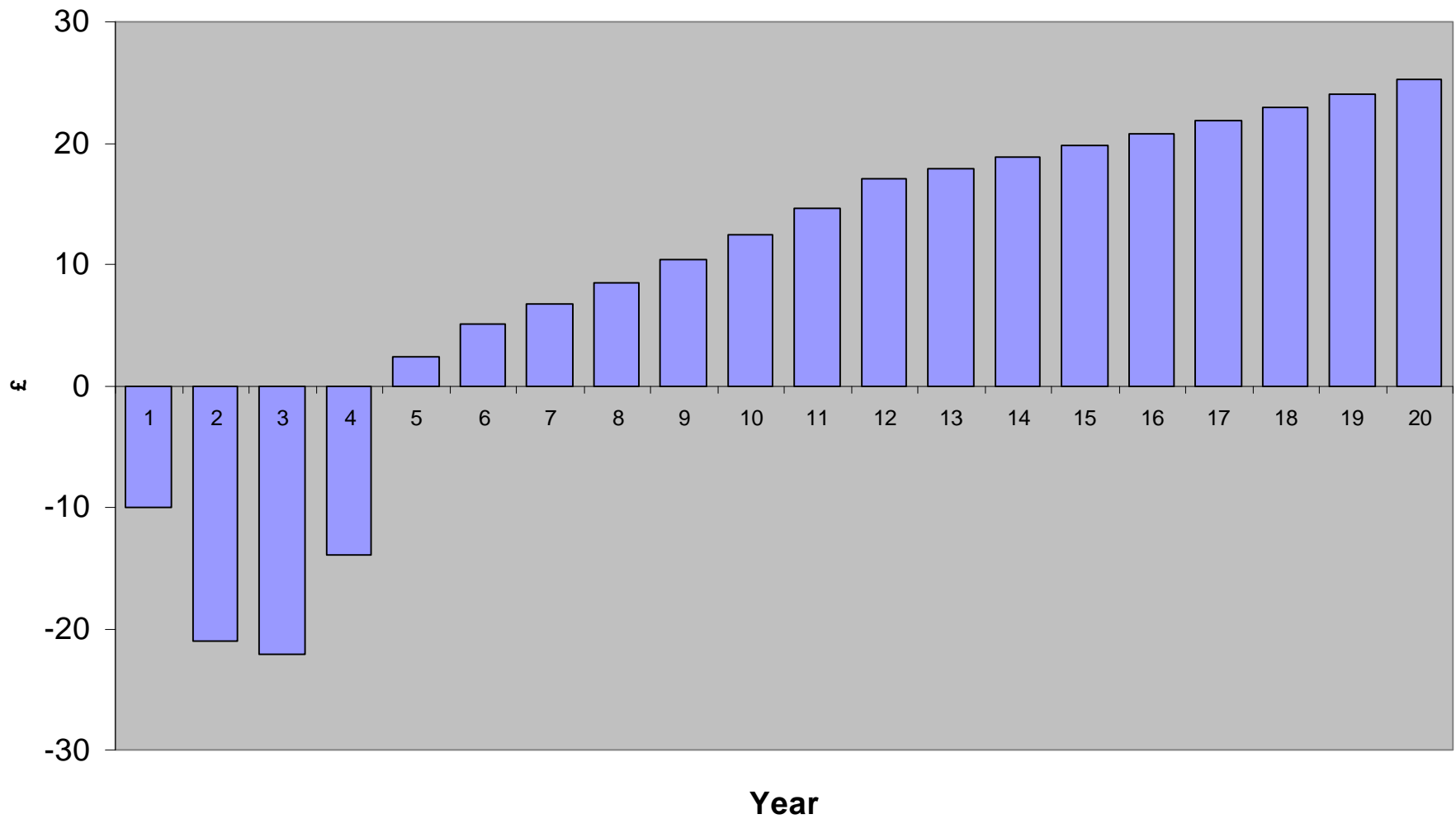
Economics : Some Basic Concepts

- What is it about? - Putting Scarce Resources To Their Best Use (maximising output (health status) st inputs
- criteria - efficiency (allocative, technical), equity)
- How? - By Comparing Costs and Benefits in £ Terms

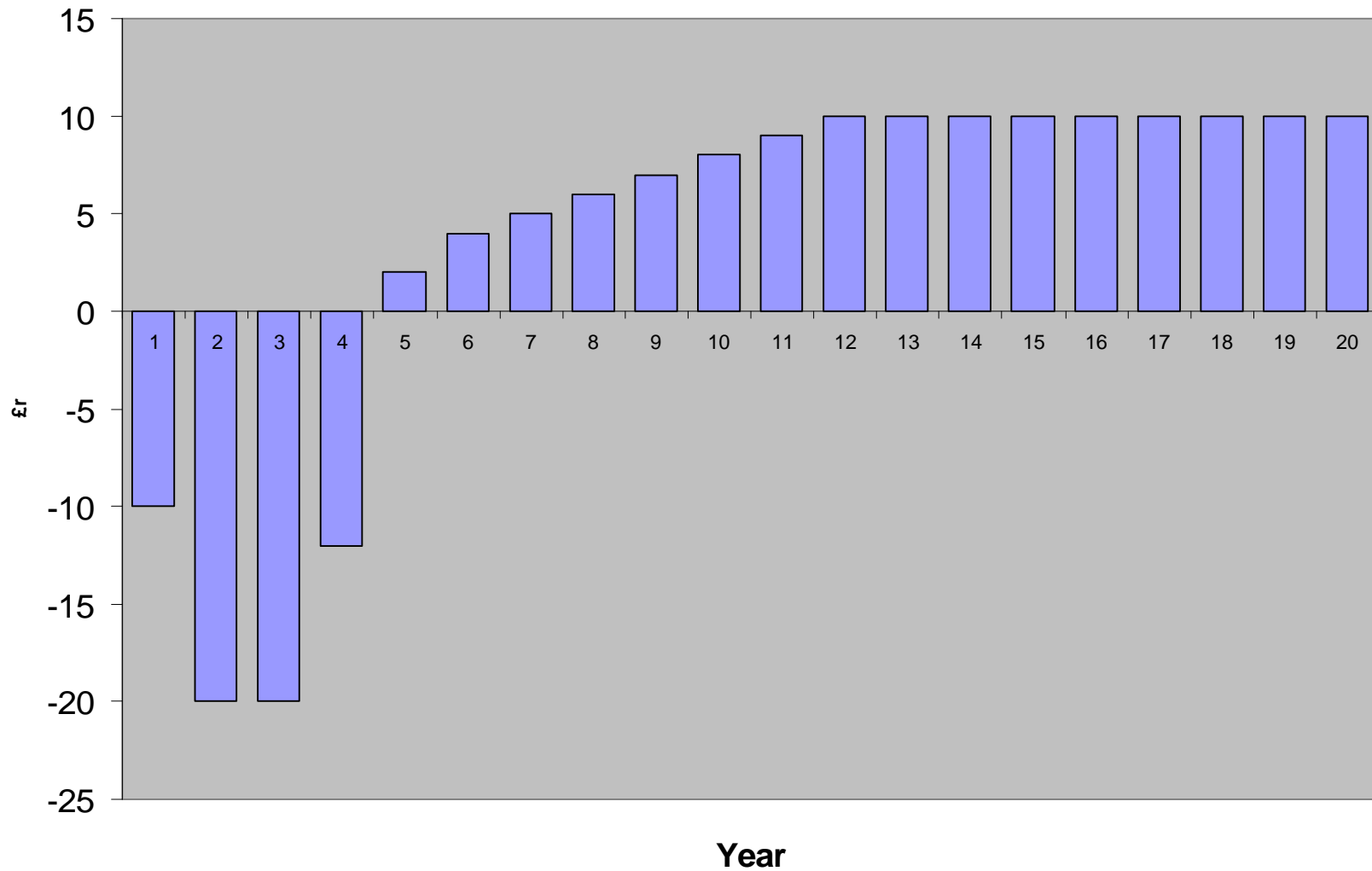
Using the following approaches:

- Using Economic not Financial measures of costs and benefits
 - opportunity costs
 - “know the costs of everything and the value of nothing”
- Using Discounting
- Using Marginal not Average costs and benefits
 - identifying the right counterfactual

Financial Cashflows: Investment X



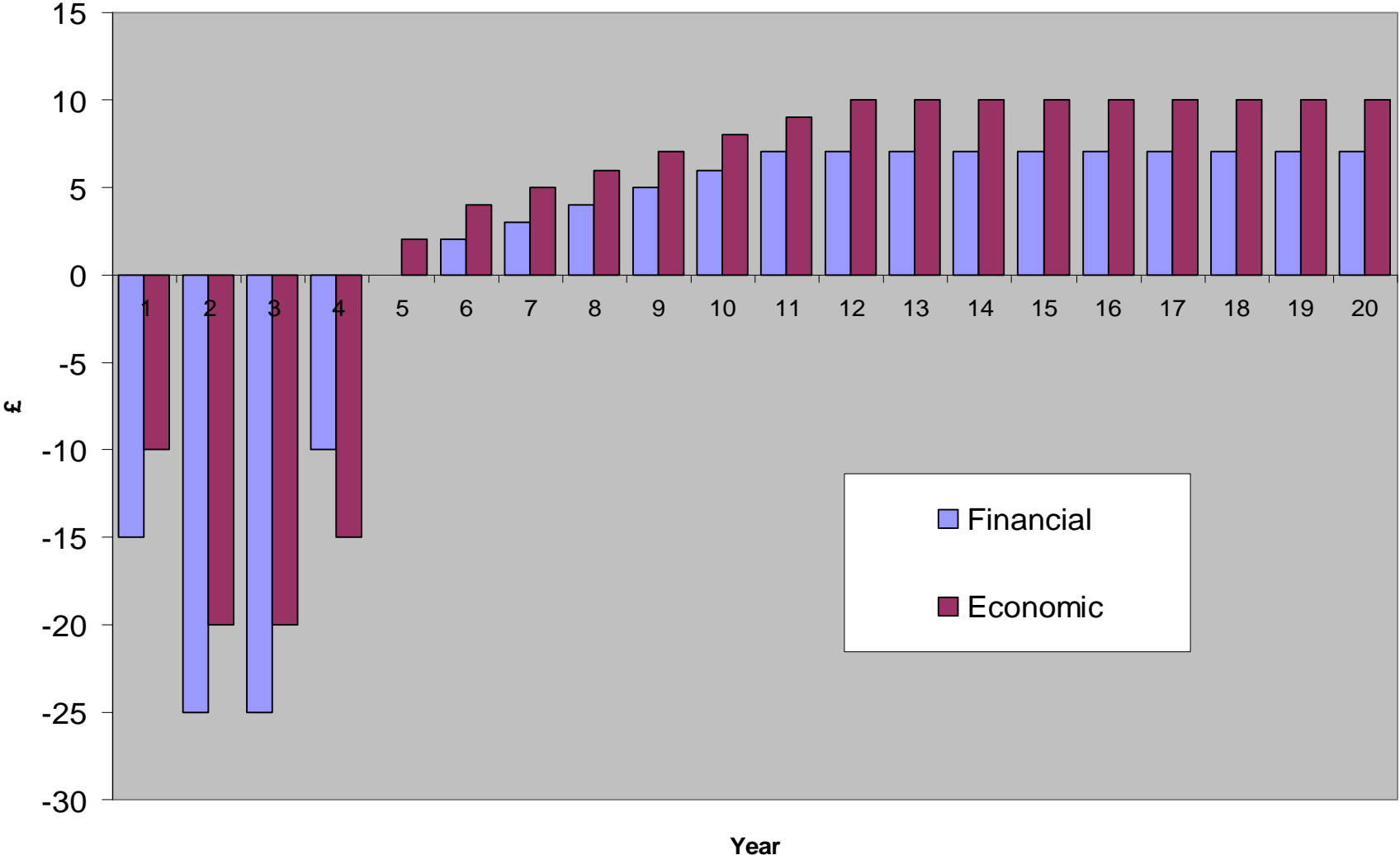
Financial Cash Flows (Adjusted for Inflation)



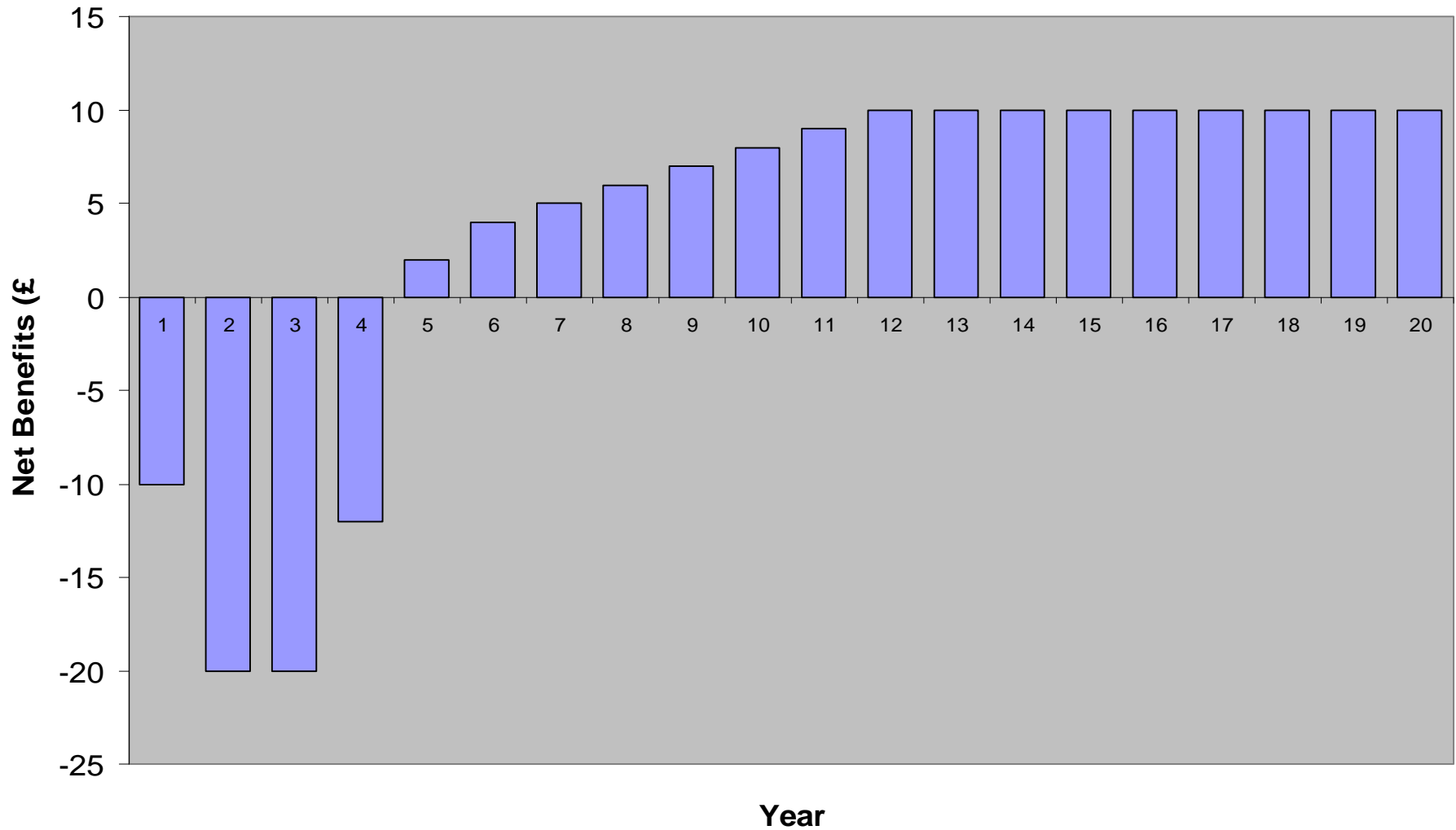
Why Economic and Financial Costs Can Differ

- market price (what you pay) does not reflect true resource costs
 - taxes and subsidies
 - distorted wage rates

Distinction Between Economic and Financial Cost and Benefits



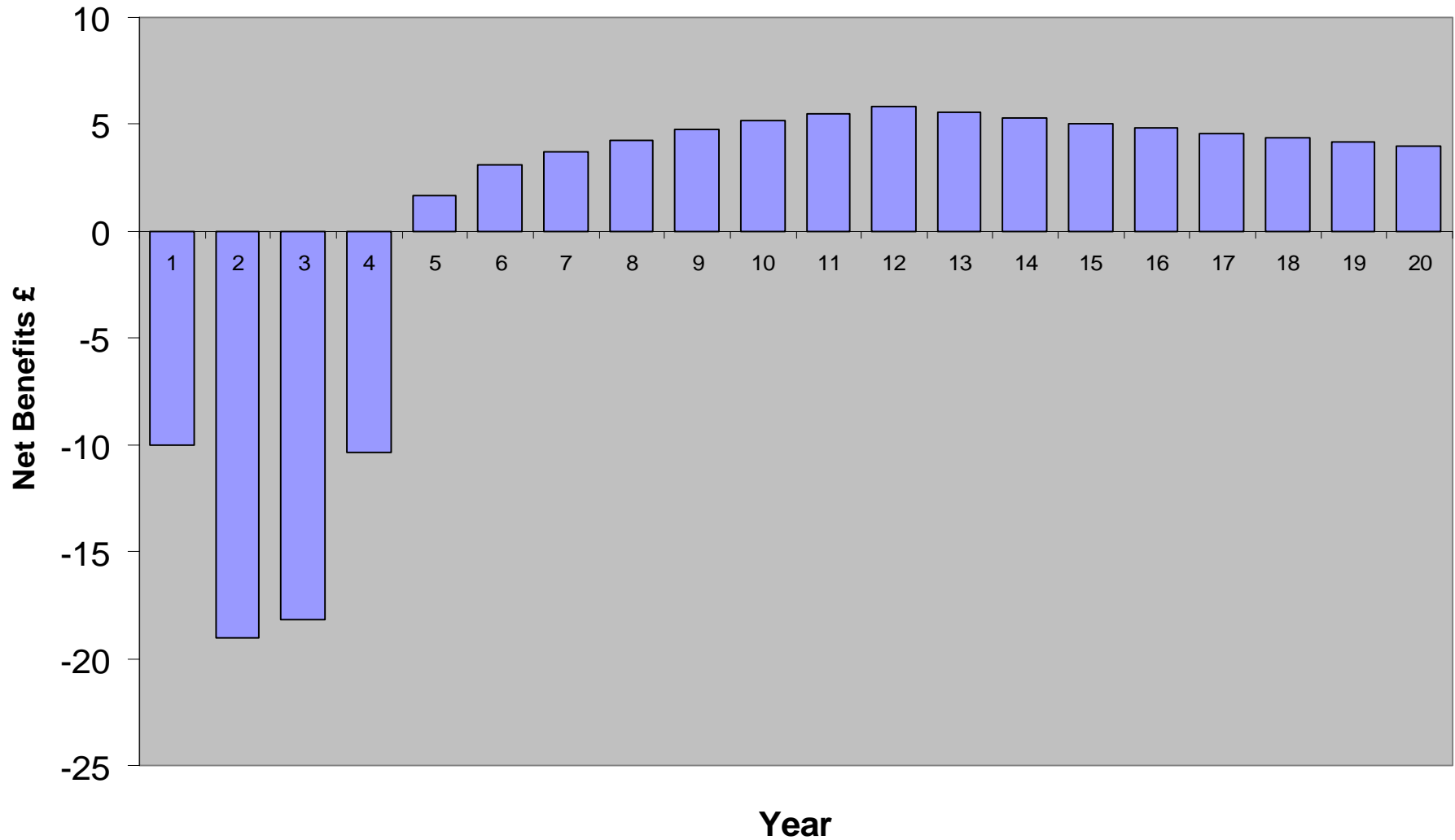
Real Economic Costs and Benefits (adjusted for inflation)



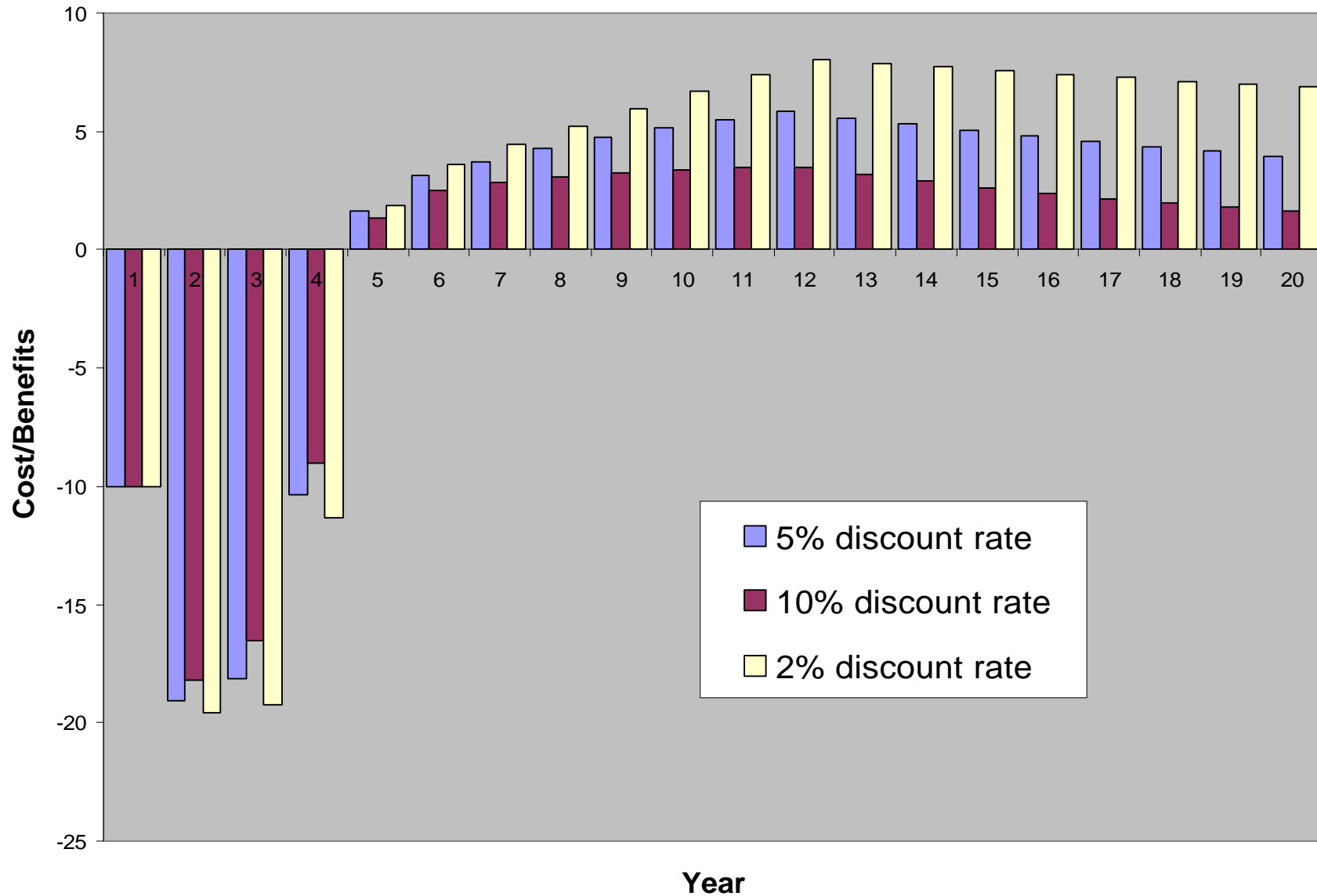
Discounting

- is not about inflation
- is used differently in public and private sectors (in the private sector it is about discounting for risk, in the public sector it relates to the returns which would be available from the alternative public sector investment)
- a discount rate should be used, it should be the same in all sectors, some doubt as to its exact level, sensitivity analyses can be carried out to assess the robustness of findings

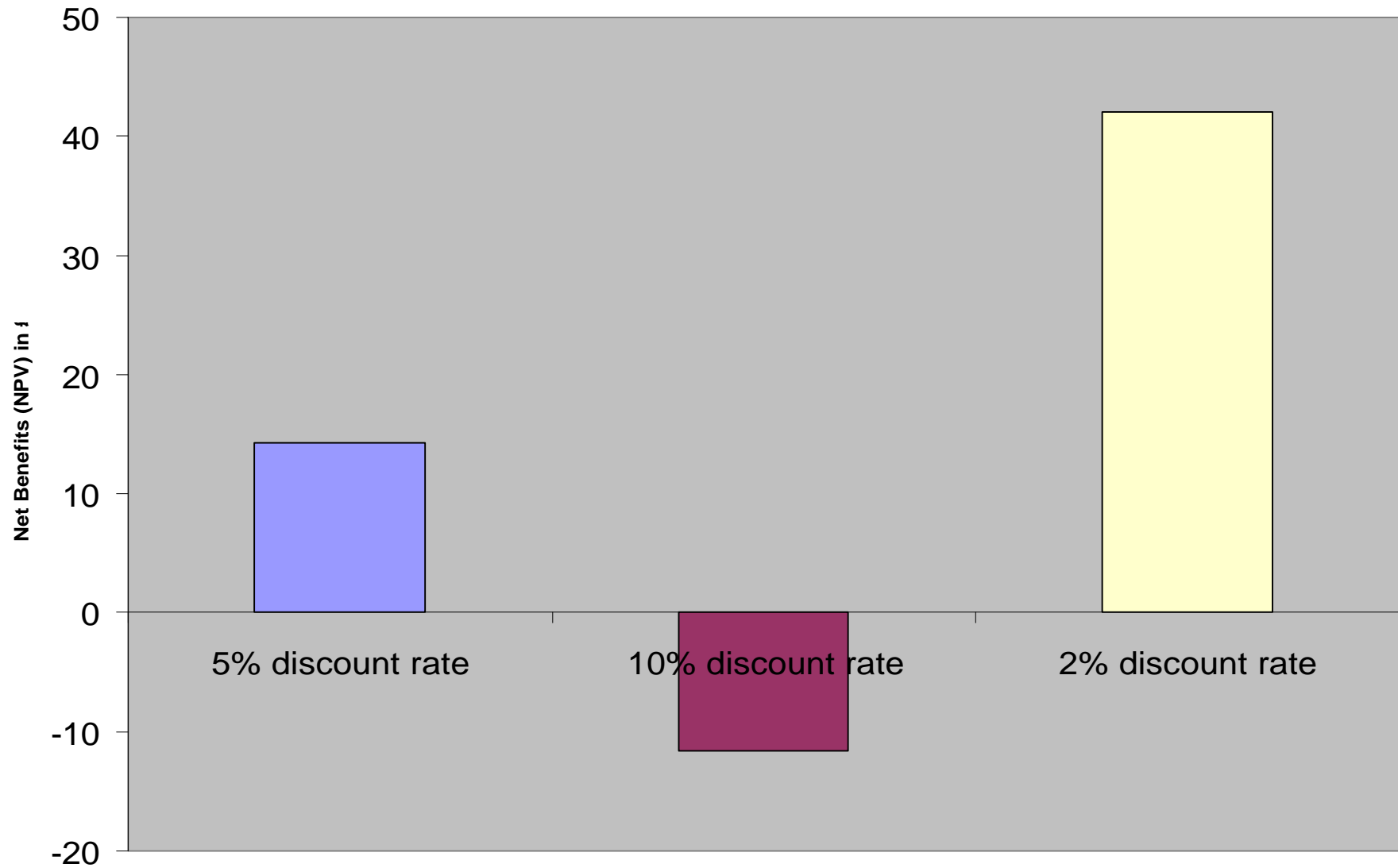
Real Economic Costs and Benefits Discounted at 5% (NPV = £14)



Impact of Different Discount Rates



Net Present Value of Benefits



Marginal v Average Costs

Example: Choose from 3 alternatives

- approach A: do nothing $C=0, B=0$
- approach X: $C=4, B=12$
- approach Y: $C=6, B=15$

choose X as 3B per C compared to 2.5?

Marginal Cost Approach

Yes, X has lower average C per B but the extra (marginal) benefit of choosing Y over X is $3B$ and the extra (marginal) cost $2C$. Thus, you should actually choose Y provided:

- you are willing to pay $2C$ for the extra $3B$
- you have an extra $2C$ available

Key Lessons

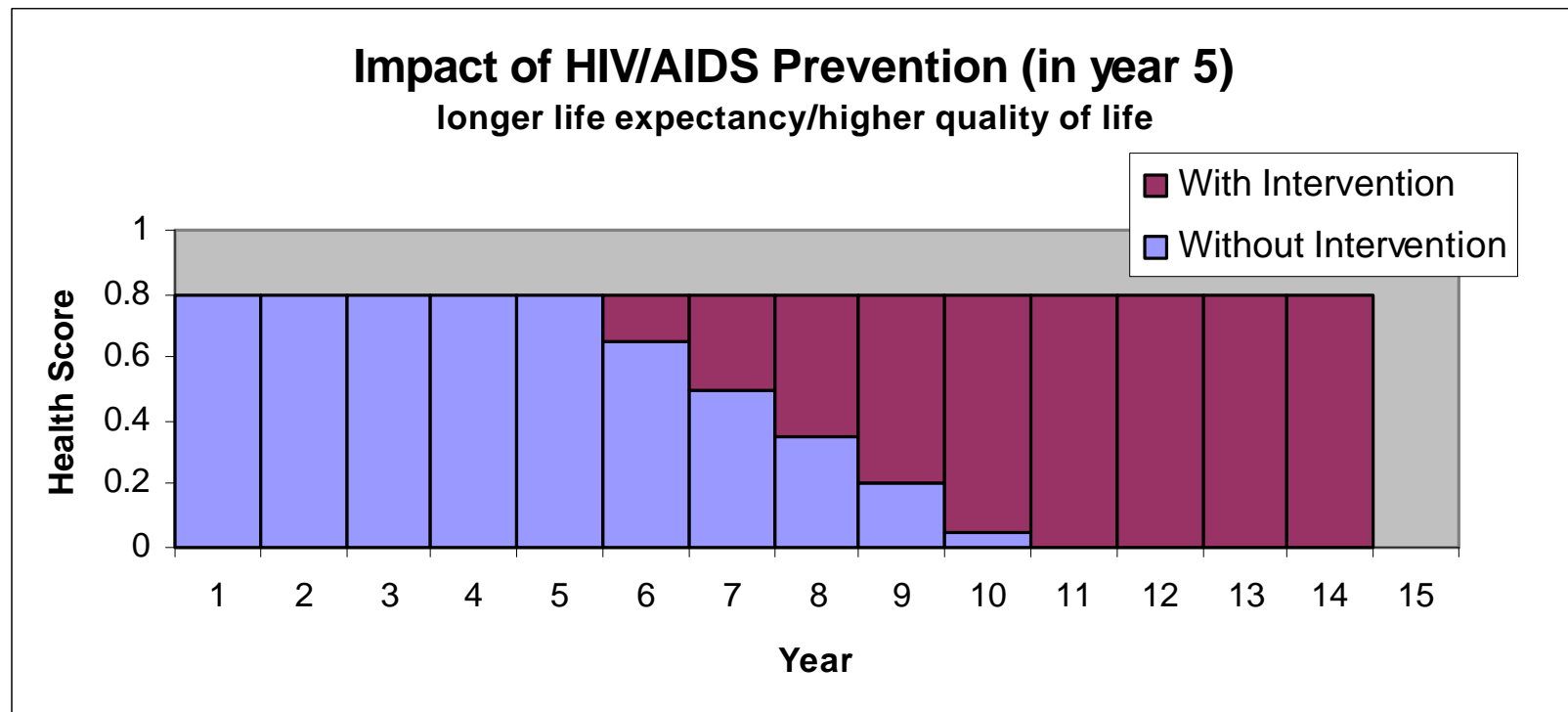
- economic costs can differ significantly from financial costs
- discount rates
 - are not the same as inflation
 - should be used, should be the same in all sectors but ? over level to be used - sensitivity analyses
- marginal analysis required
 - decision making should be based on analysis of marginal costs and benefits (not averages); identifying the correct alternatives is vital

Application to the Health Sector

Various Approaches to Economic Analysis

- **cost benefit analysis** (15% rate of economic return)
- **cost minimisation analysis** (cost £25 compared to £30)
- **cost effectiveness analysis** (£10 per life saved compared to £30)
- **cost utility analysis** (\$10 per DALY compared to \$200 per DALY)

DALY analysis - an example



DALY league table

- **\$25 per DALY**
 - Breast-feeding promotion
 - TB and measles immunisation
 - Malaria control with chemical pesticides
 - Blood screening for HIV
 - Condom use to prevent excess births and STDs
- **\$25-75 per DALY**
 - Use of ORS
 - Food supplements for children
 - Food supplements for pregnant women
 - Improved antenatal care by upgrading facilities & providing family planning
- **\$75-250 per DALY**
 - Cholera immunisation
 - Medical treatment of tetanus
 - Onchocerciasis control with chemical pesticides
 - Malaria control with passive case finding and chemical pesticides with treatment
- **\$250-\$1000 per DALY**
 - Improved dengue case management through education of health care providers
- **>\$1000 per DALY**
 - Dengue control with chemical pesticides, with or without improved case management
 - Dengue control by drainage and land management, with or without improved case management

Essential Package

Intervention	Per capita cost (1990 \$)
EPI Plus	\$0.5
School Health (education plus deworming)	\$0.3
Other Public Health Programs (including family planning, health and nutrition information)	\$1.4
Tobacco and Alcohol Control	\$0.3
AIDS Prevention Program	\$1.7
Short-course Chemotherapy for Tuberculosis	\$0.6
Management of Sick Child (treatment of pneumonia, diarrhea and malaria)	\$1.6
Prenatal and Delivery Care	\$3.8
Family Planning	\$0.9
Treatment of Sexually Transmitted Diseases	\$0.2
Limited Care (pain alleviation, minor trauma and infection)	\$0.7
TOTAL	\$12.0

Drawbacks With The DALY Approach to Economic Analysis in the Health Sector

- the DALY a not good indicator of health status
- lack of agreement on whether it should be weighted and be discounted? If so, by how much?
- it focuses on marginal not average costs
- it assumes services are efficiently provided
- it rules out new innovative but initially high cost approaches
- many inputs are carrying out multiple activities and delivering different outputs
- focuses on health sector costs (not those of the individual)
- it is not pro poor
- data on effectiveness is very unreliable
- does not allow for institutional/political complexities
- it is a costly exercise (both time, \$ and effort)
- difficult to translate findings into budgets
- supply led
- the standard \$12 package is unaffordable and of little relevance to many low income countries
- focus is on costs – not who should finance

....But Overall

The DALY approach is the current standard approach and much investment has been put into it. It makes sense to use what has been done but **apply it cautiously**.

- .It is an **aid to decision-making**, not a decision rule in itself,
- .It is, with current techniques, quite a crude approach; estimates should therefore only be treated as **indicative**.
- .It can be an **expensive data-intensive approach**.
- .If used sensibly, it can be **a useful basis for stimulating public discussion of priorities**,
- .The DALY approach should be considered in the light of the alternatives. On these grounds the DALY approach, for all its shortcomings, is **probably better than the other methods available**

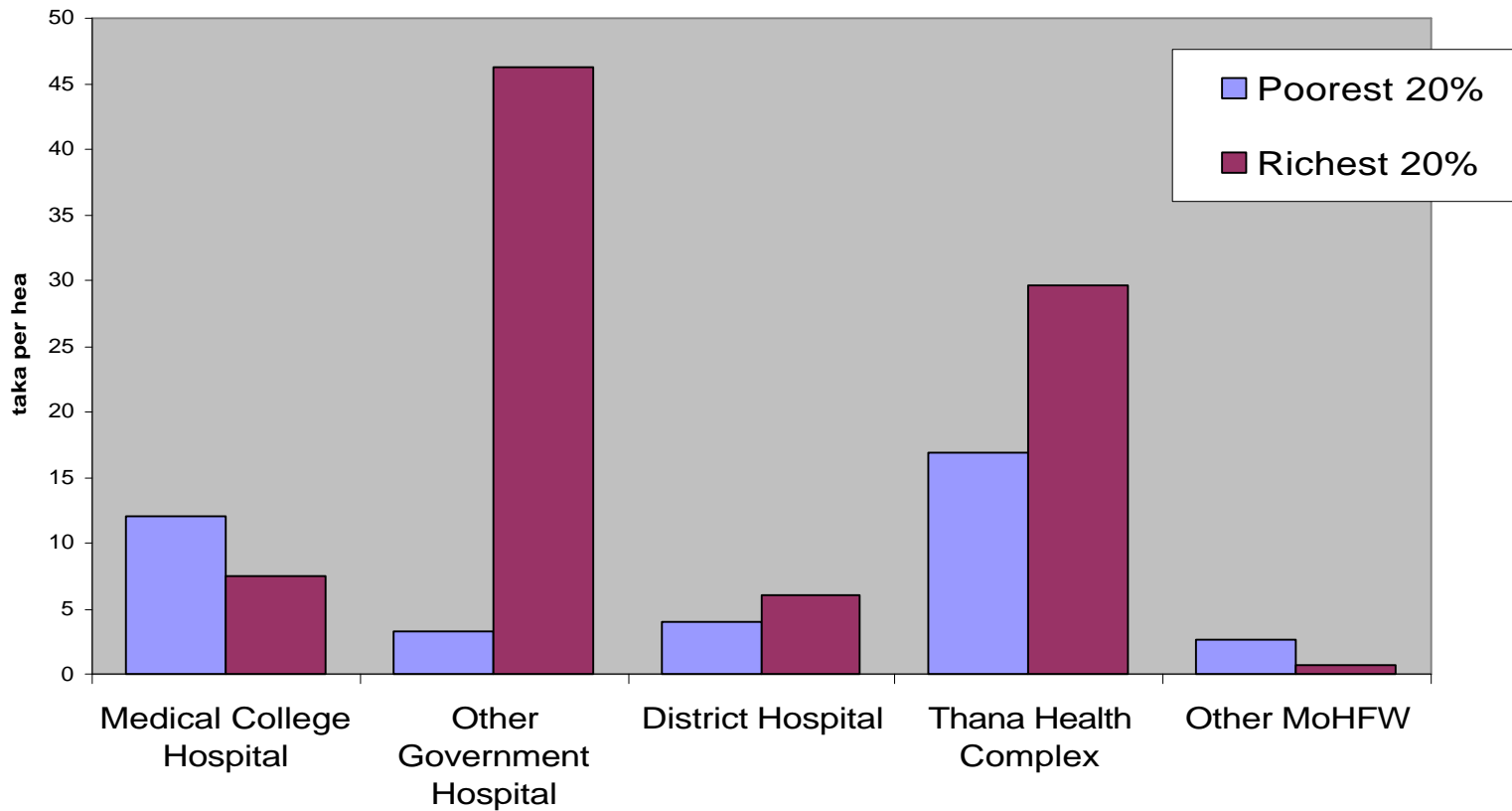
What about Equity?

Cost effectiveness analysis only looks at efficiency Equity can be introduced

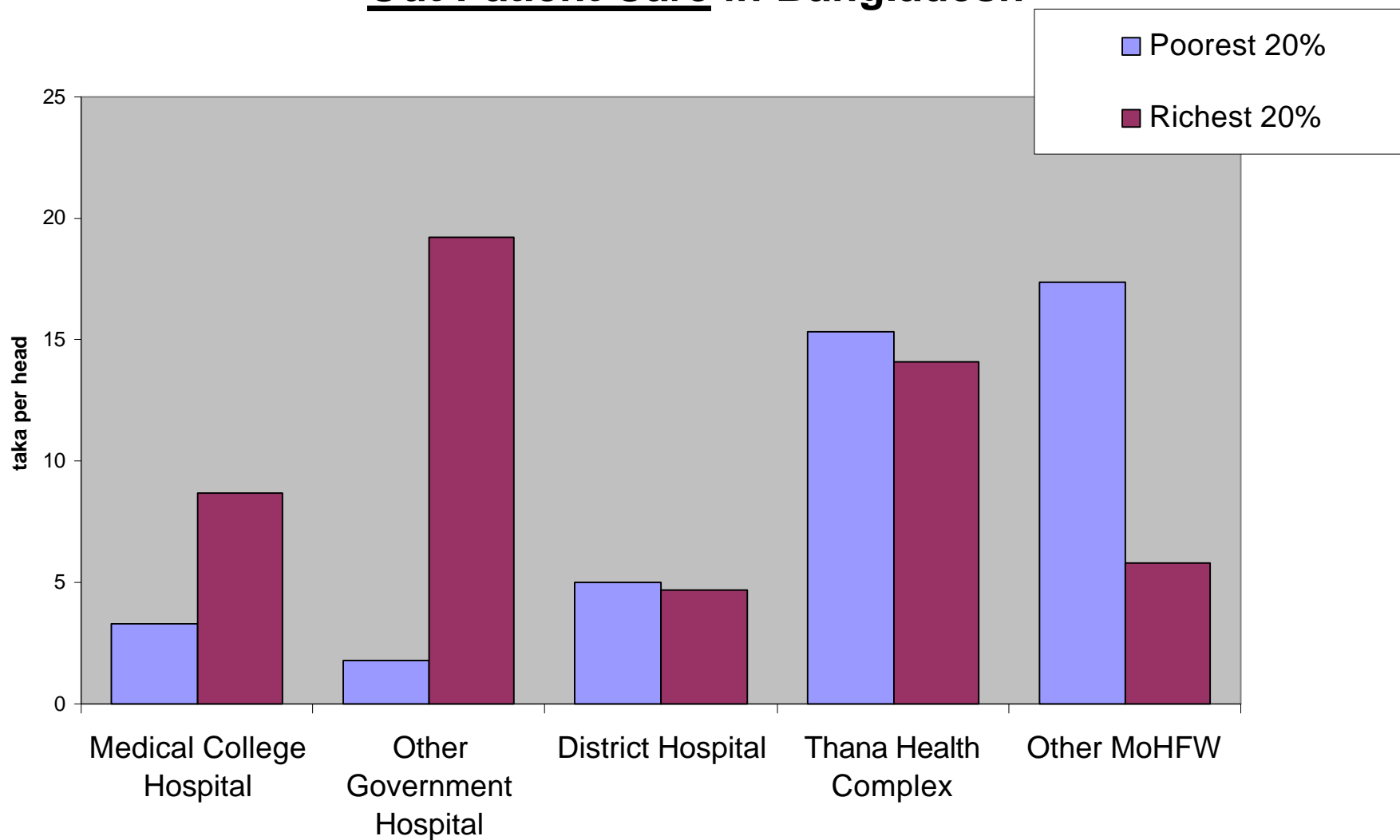
- before the event by:
 - weighting benefits accordingly or
 - directly adjusting the decision rule
- after the event through:
 - benefit incidence or
 - economic incidence

Benefit Incidence - Who Gets What?

**Subsidy Per Capita By Facility and Income Group
In Patient Care in Bangladesh**



Subsidy Per Capita By Facility and Income Group Out Patient Care in Bangladesh



Economic Incidence : Who gets what and who pays for it?

	Per Capita Contributions	Per Capita Benefits	Benefit Cost Ratio
Northern	200	250	1.25
Southern	150	195	1.30
Eastern	130	225	1.73
Western	180	210	1.17
Central	250	190	0.76

Market Failure In The Health Sector - why the centre needs to intervene

- economies of scale - leads to monopolies
- information asymmetry
- externalities

Example: Health Insurance

Why Private Health Insurance Markets Exist

People are willing to pay a little extra to reduce risk i.e. will pay a premium of £11 to remove the risk of a 1 in 10 chance of losing £100

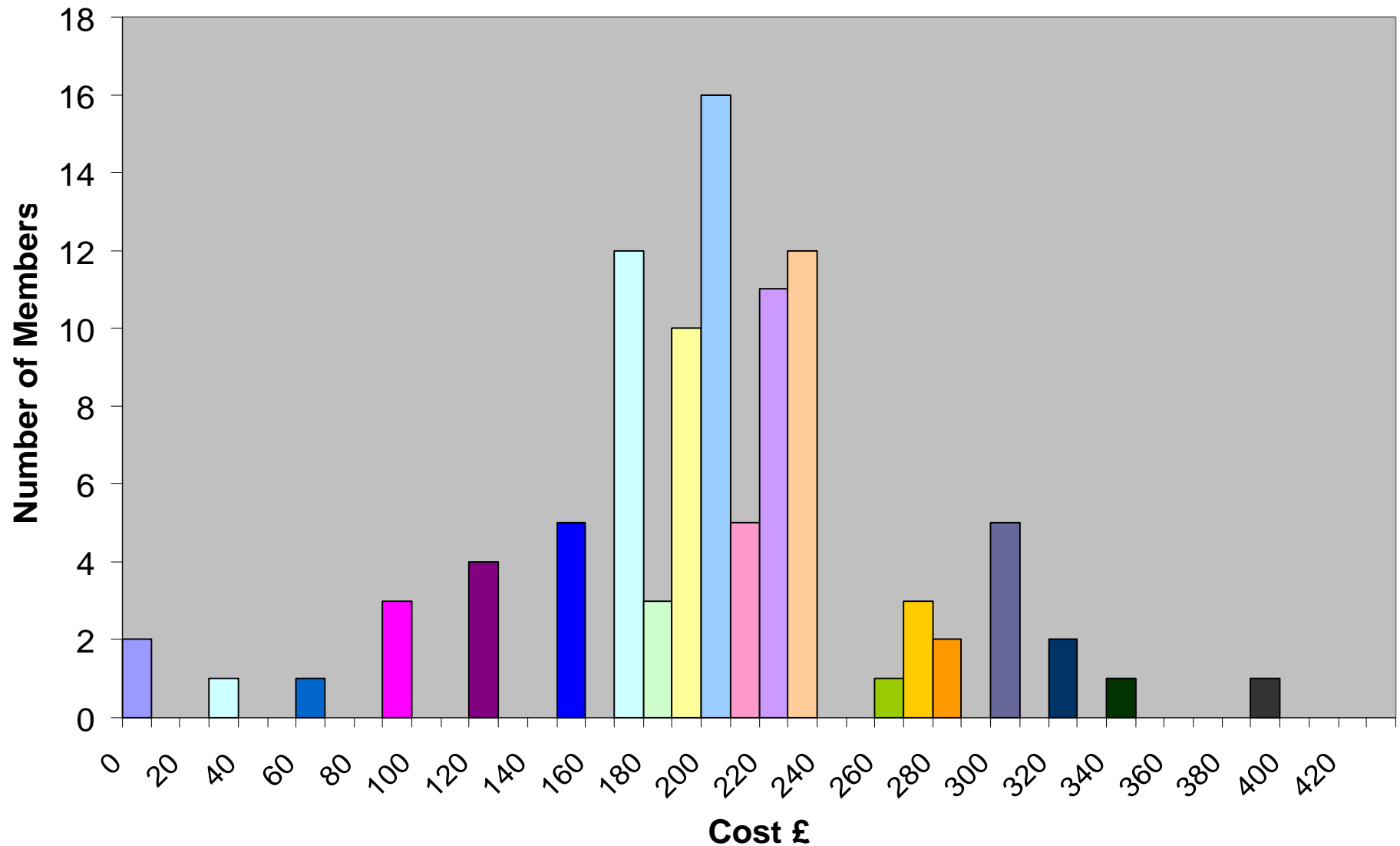
(technical jargon: actuarially fair premium = £10, load factor = £1)

Premiums - Treatment Costs - Running Cost = Profit

Market can exist if Profit > 0

Cost of Health Treatment for 100 Members

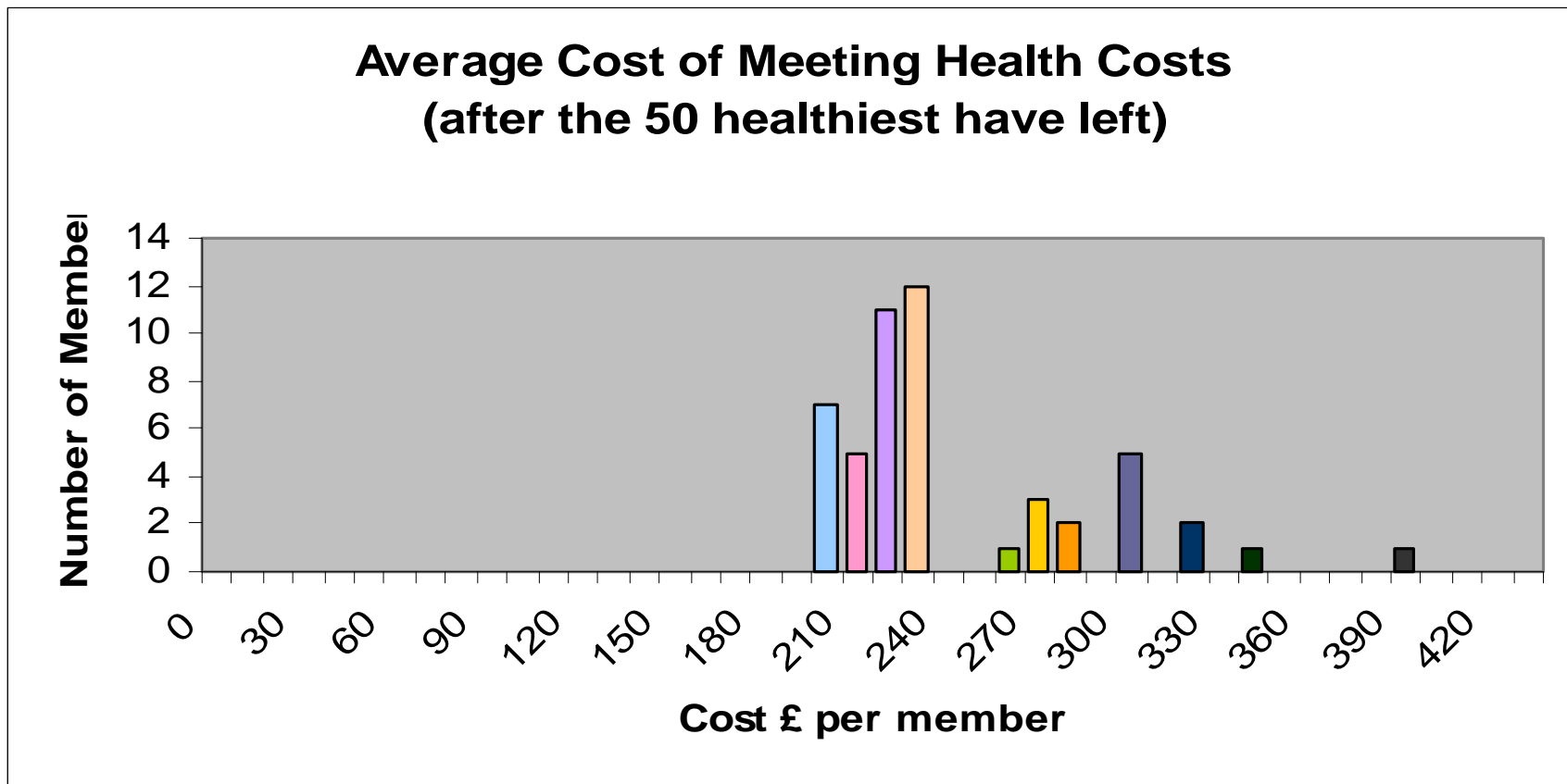
(Average Cost = £200 - Premium = £220 - Load Factor = £20)



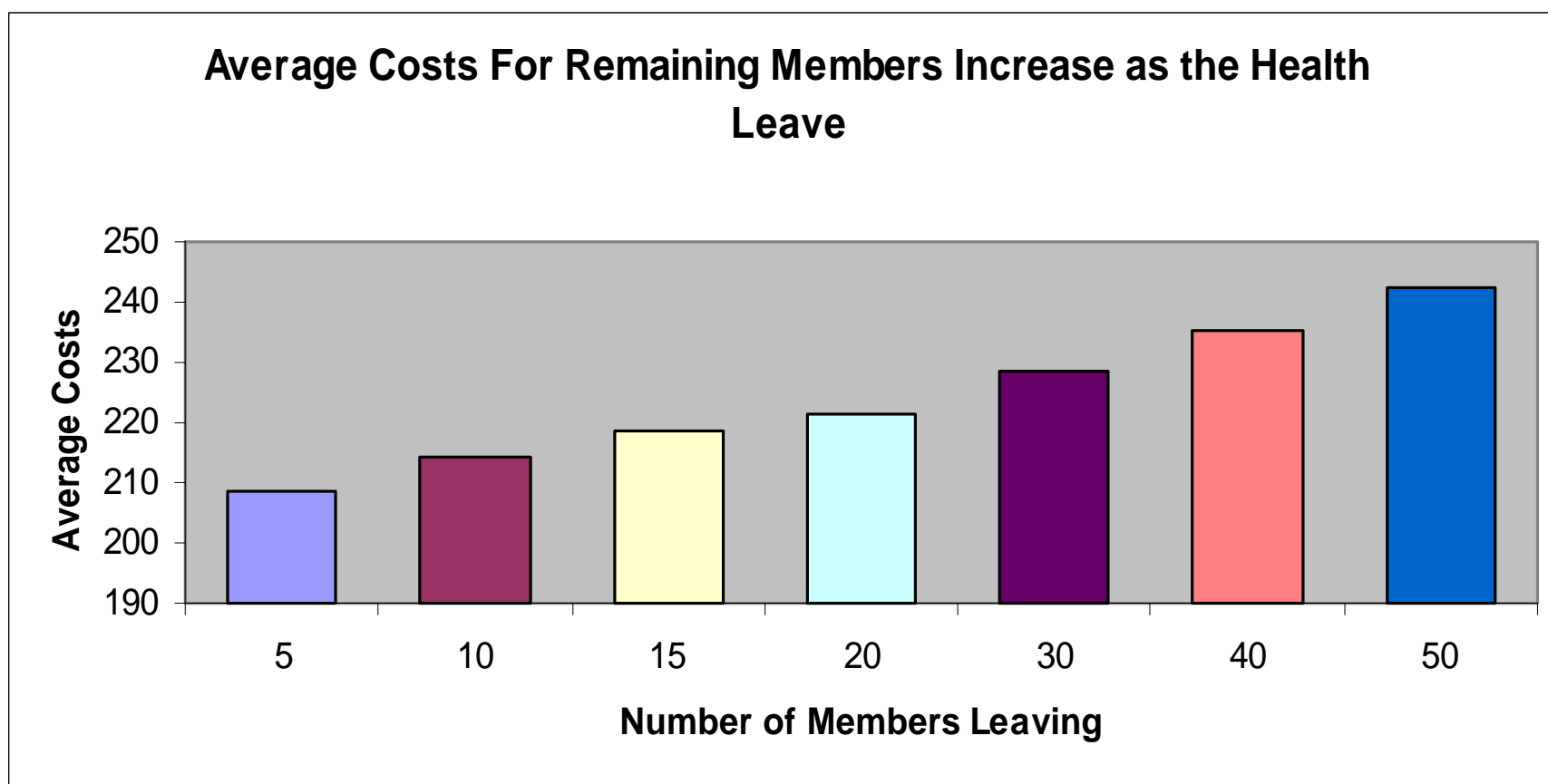
Why Health Insurance Markets Can Fail

	Members	Premium Levels	Premiums Collected	Costs of Treatment	Running Costs	Company Profits
Working Well	100	220	22,000	20,000	1,000	1,000
Economies of Scale	100	230	23,000	19,000	1,000	3,000
Moral Hazard	100	220	22,000	22,000	1,100	- 1,100
Adverse Selection	70	235	16,450	22,000	850	- 6,400

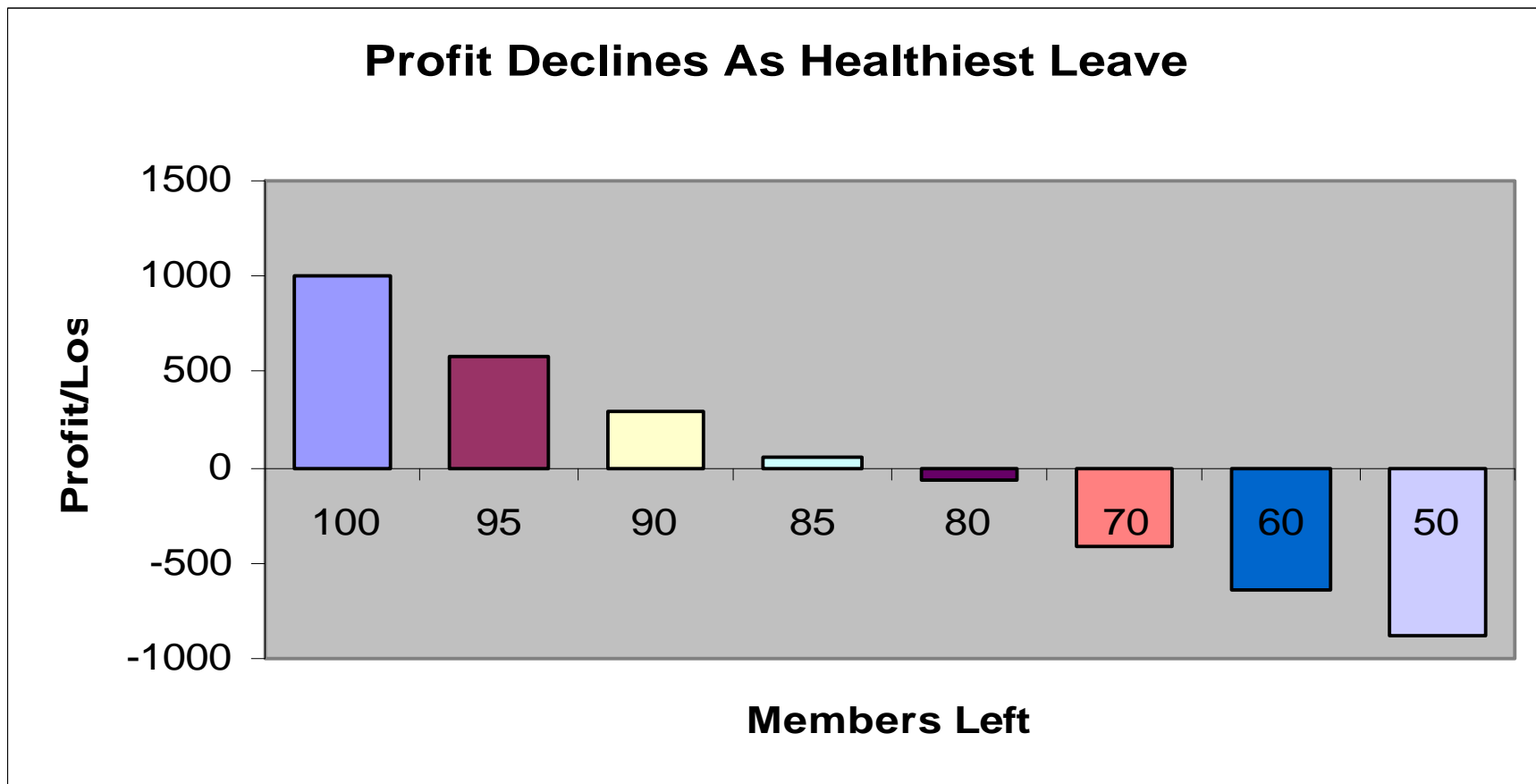
Adverse Selection - the healthy leave....



... average costs go up, premiums may increase, more members leave..



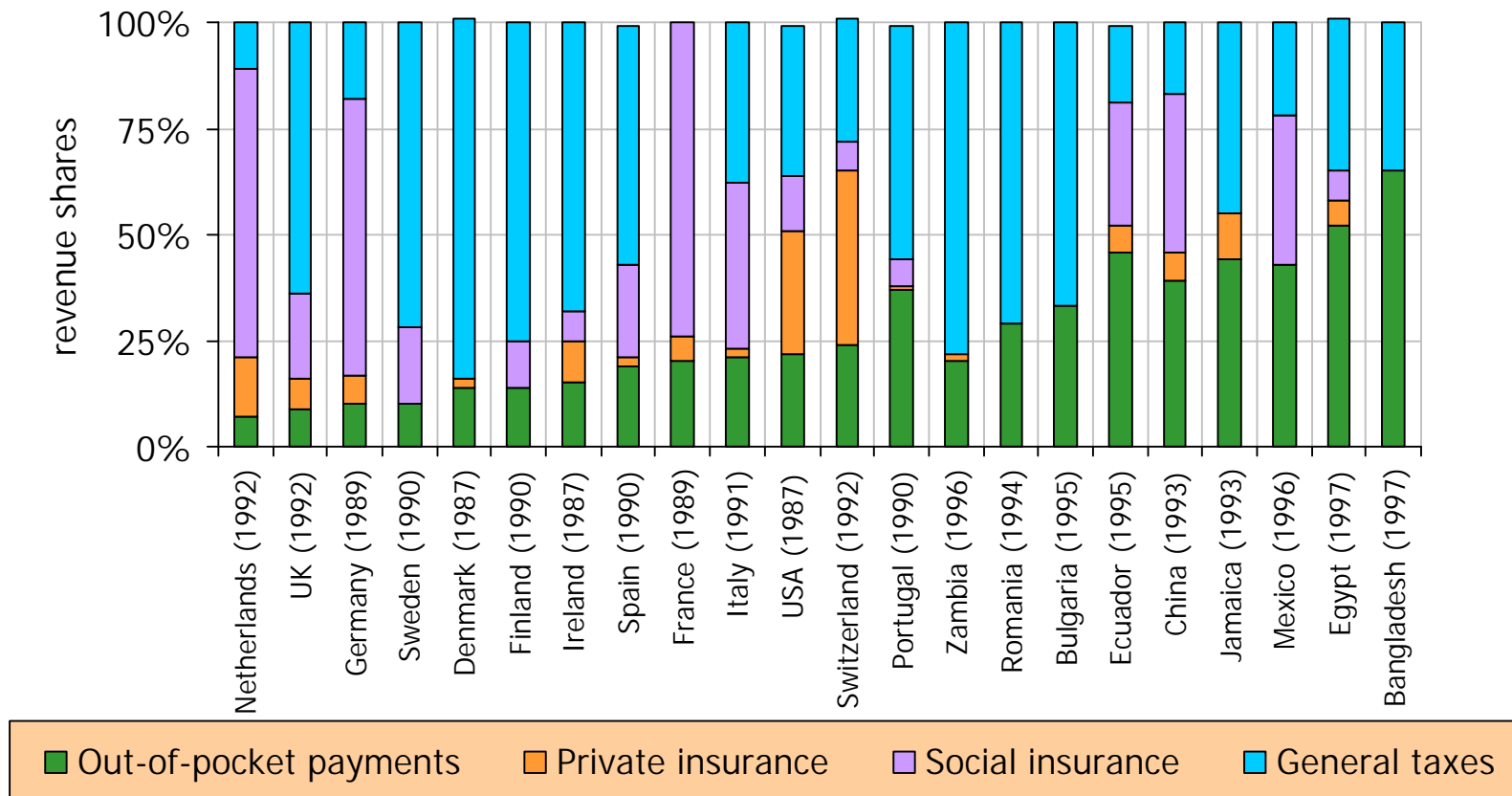
....profits decline and the scheme collapses



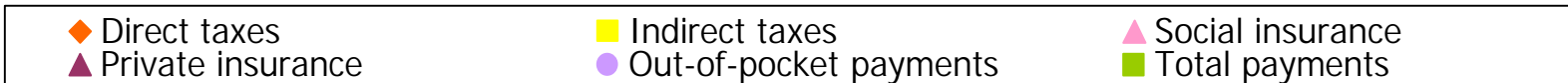
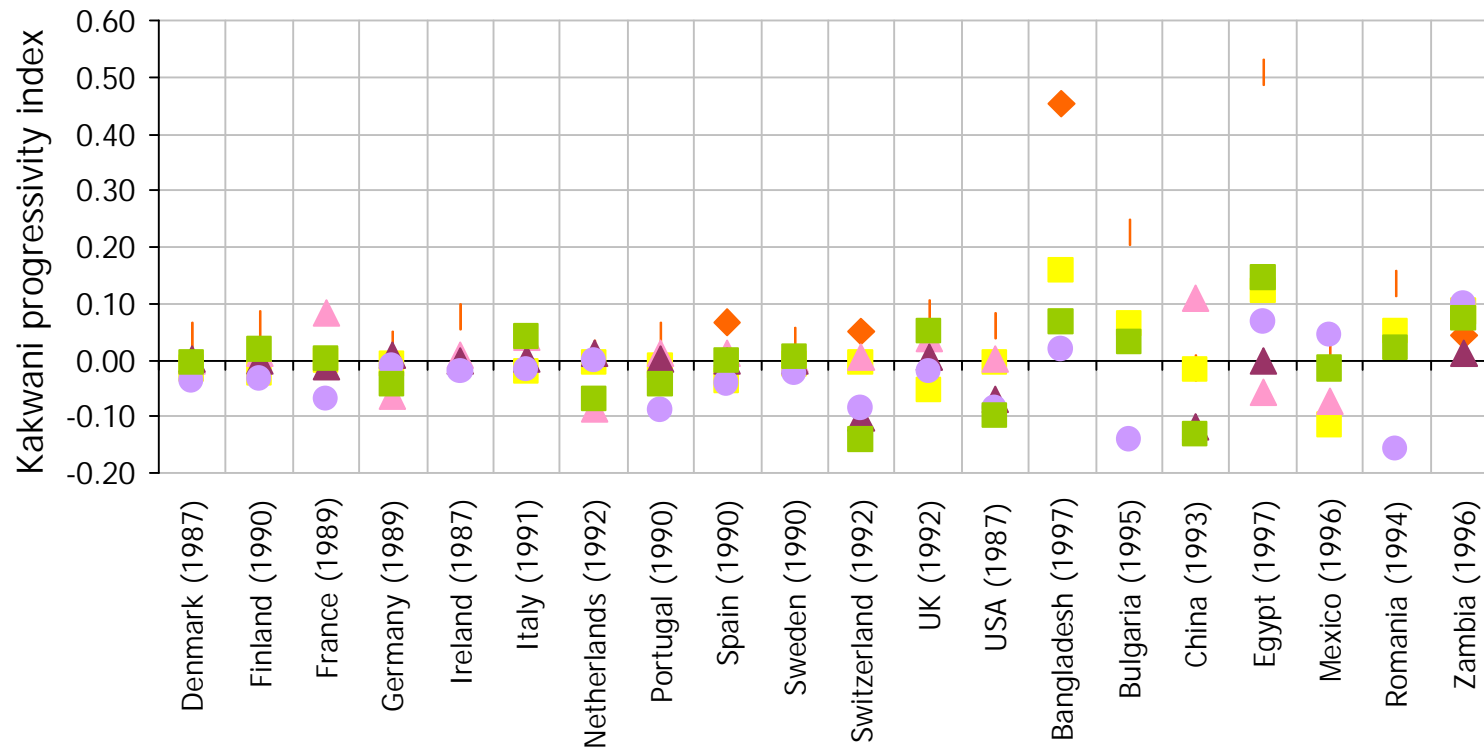
Health Financing

- **revenue raising**
 - taxation (general, indirect), social insurance, user fees
- **revenue allocation**
 - by level hospital, PHC, by service, geographical allocation
- **provider payment**
 - global budgets, fee for service, salary, capitation, diagnostic related groups

Sources of Revenue (Wagstaff)



how progressively is health care financed?



how efficiently is health care financed?

most efficient

- taxation
- insurance
- user fees/fee for services

least efficient

Provider Payments

Incentives introduced:

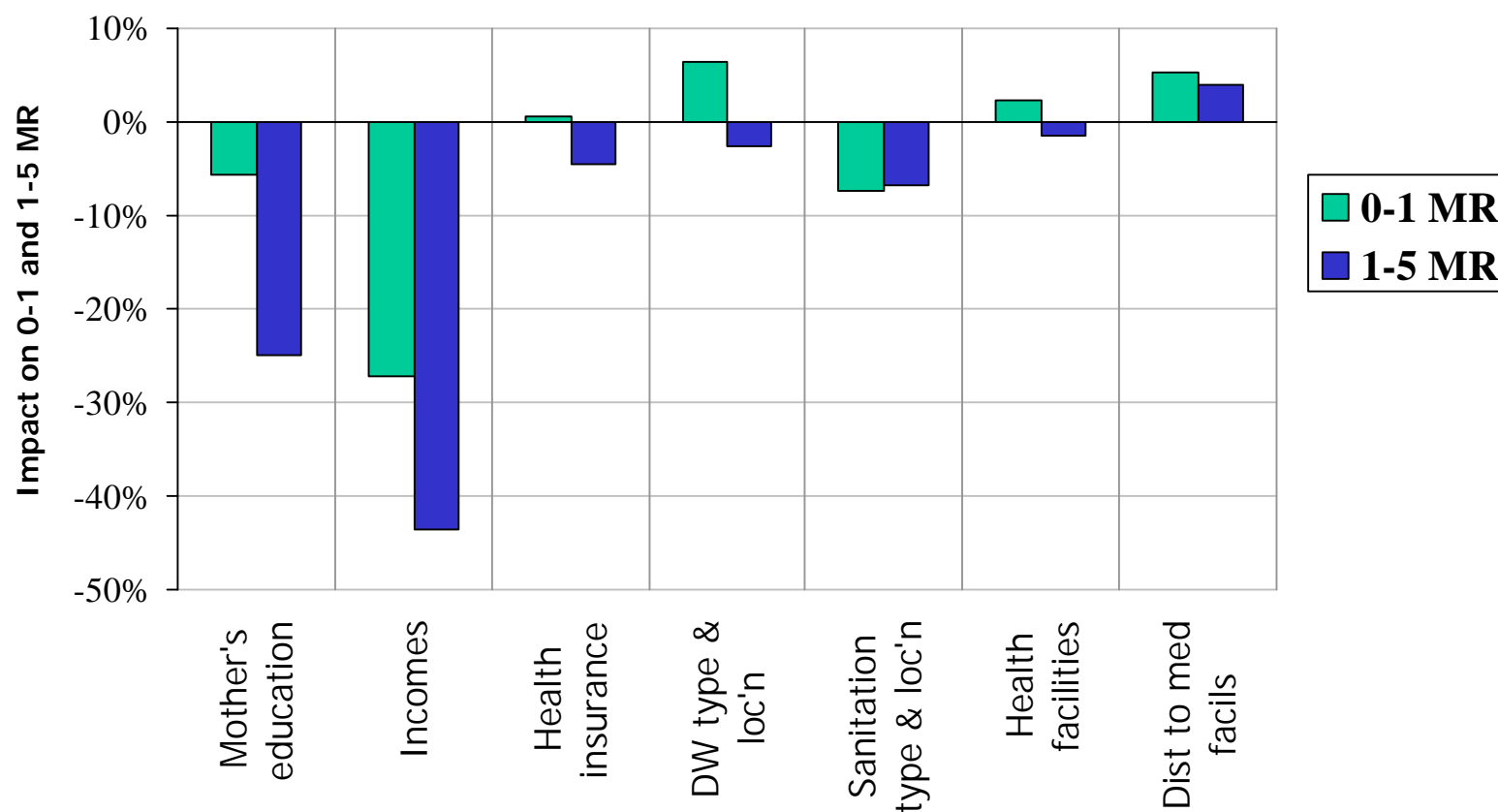
- global budgets - minimise activity
- fee for service - do as much activity as possible whether it makes sense or not,
- salary - do as little work as possible you get your money anyway
- diagnostic related groups - maximise activity whether necessary or not and/or misclassify type of activity
“DRG creep”
- capitation - minimise costs, reduce activity

General Concerns

- Value for money offered from health investment is low MoH v weak, little link between health expenditure and health outputs, investment in other sectors more effective
- cannot look at projects in isolation
Fungibility - overall funds moving in the wrong direction

Health Determinants : Cebu, Indonesia

(Wagstaff)



Lack of Effectiveness of Current Approaches

- importance of policy environment

(Collier/Dollar) - : a reallocation of aid to “good policy / high poverty” countries would lead to larger reductions in poverty: as much in fact as could be achieved by a tripling of current aid budgets.

- implications for achieving IDTs

Back of the Envelope Calculation

cost of meeting IDT - reducing child deaths by 2/3 by 2015

Averting 2/3 x 11m deaths @\$50,000 per death averted (Filmer and Pritchett) = \$366bn : current total development assistance = approx \$50bn

Key Reading

- World Bank Online Health Economics Course www.worldbank.org/
- IHSD toolkits:
DALYs/Essential Packages, National Health Accounts, Resource Allocation, Pro Poor Financing Mechanisms