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TROPICAL HEALTH AT A TIME OF ECONOMIC CRISIS: HOW CAN ECONOMICS HELP?

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**LONDON SCHOOL OF HYGIENE AND TROPICAL
MEDICINE**

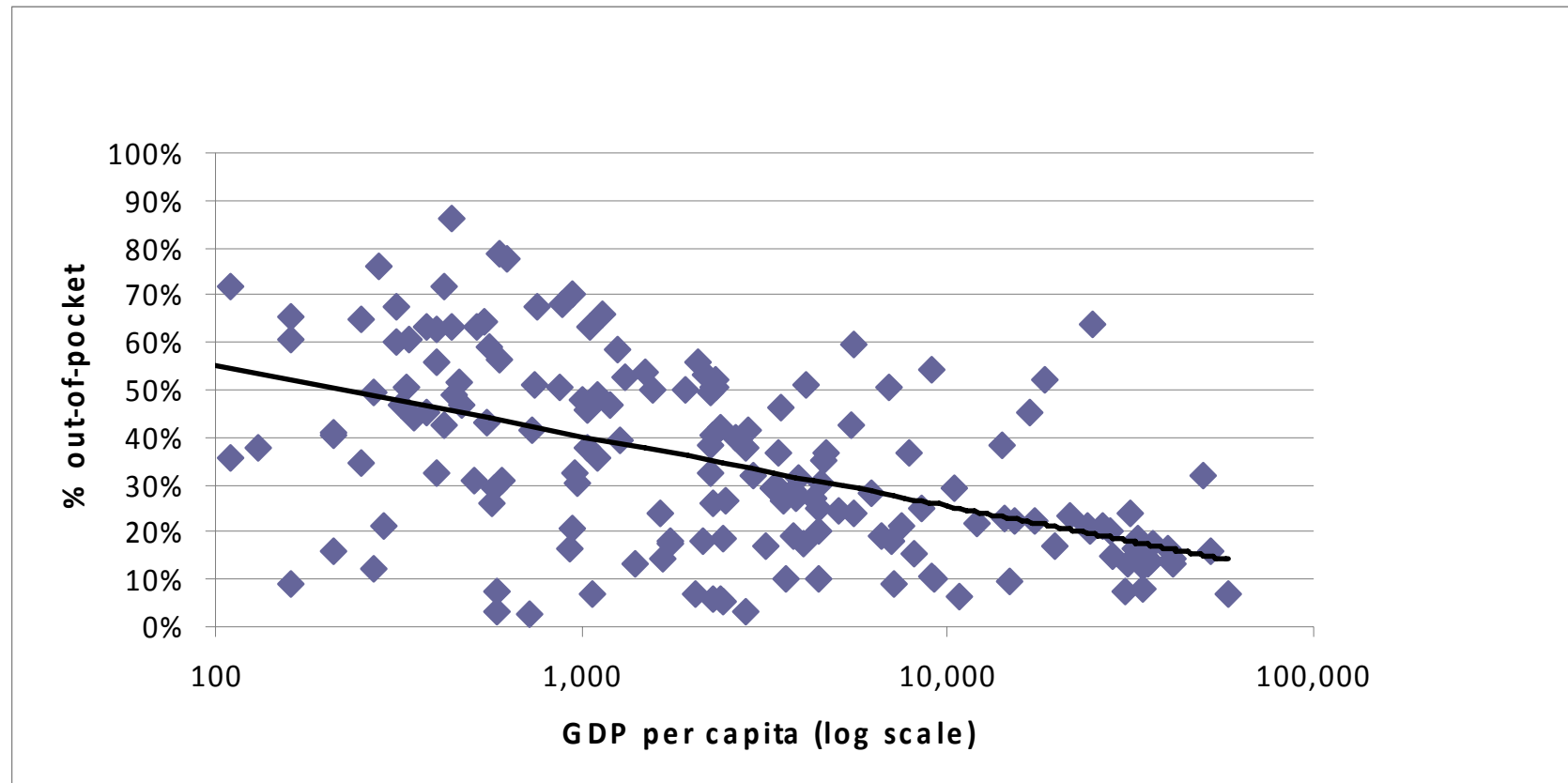
THREE AREAS WHERE ECONOMICS CAN HELP



- Advocating for greater investment in health
- Identifying ways of improving the efficiency of the health system
- Analysing health equity and how it can be improved



OUT-OF-POCKET SHARE OF TOTAL HEALTH EXPENDITURE IN RELATION TO GDP PER CAPITA



Calculated using WHO data from

http://www.who.int/whosis/database/core/core_select_process.cfm?countries=all&indicators=nha Accessed 11/1/08

SIR WILIAM PETTY (1623-1687)



- Expenditures which save lives – eg evacuating people from London during a plague epidemic – can be considered a good investment since their benefits exceed their costs

CHADWICK 1862



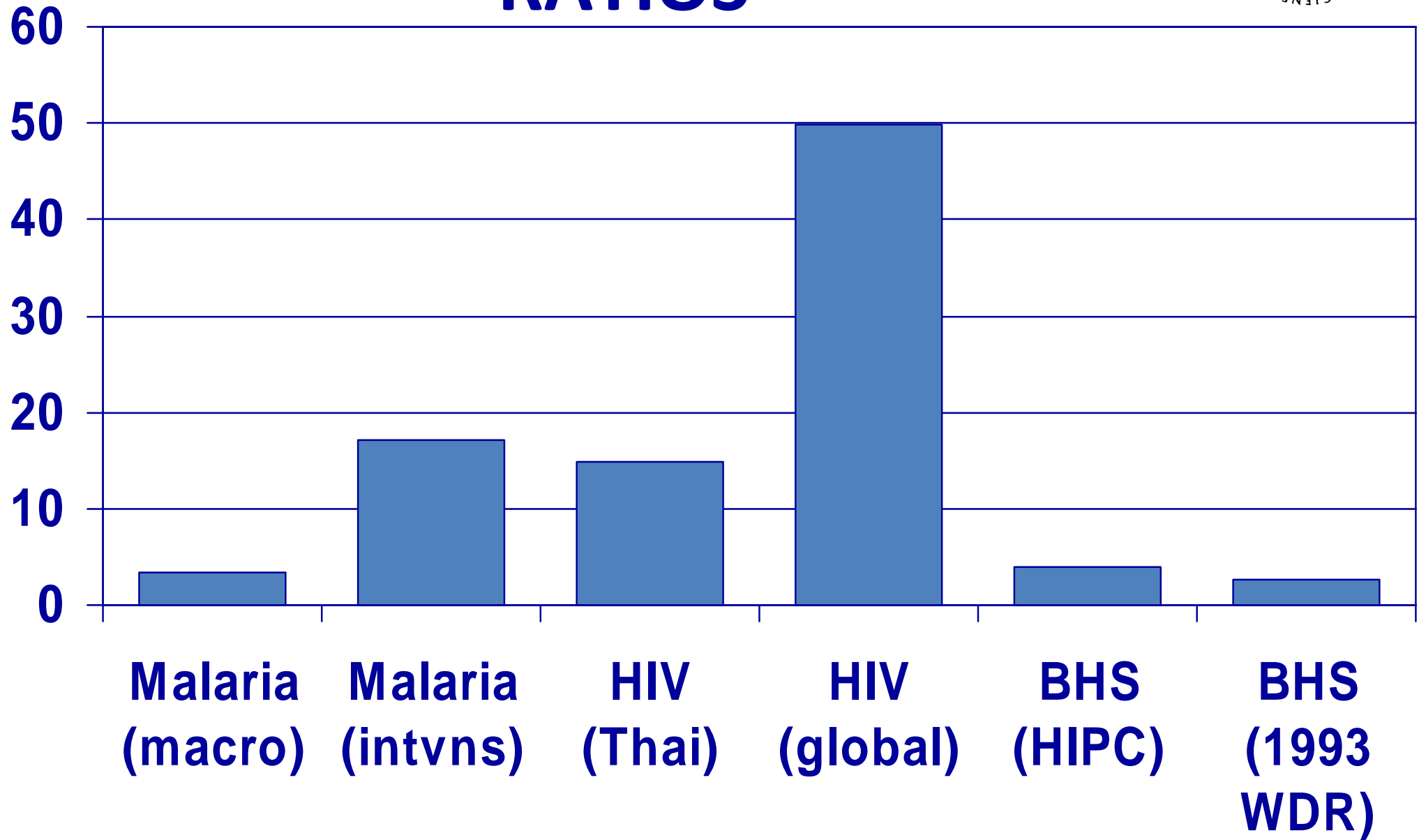
- ‘As the artist for his purpose views the human being as a subject for the cultivation of the beautiful –as the physiologist for the cultivation of his art views him solely as a material organism, so the economist for the advancement of his science may well treat the human being simply as an investment in human capital, in productive force’

COPENHAGEN CONSENSUS RANKINGS 2004



Project rating	Challenge	Opportunity
Very Good	1 Diseases	Control of HIV/AIDS
	2 Malnutrition	Providing micro nutrients
	3 Subsidies and Trade	Trade liberalisation
	4 Diseases	Control of malaria
Good	5 Malnutrition	Development of new agricultural technologies
	6 Sanitation & Water	Small-scale water technology for livelihoods
	7 Sanitation & Water	Community-managed water supply and sanitation
	8 Sanitation & Water	Research on water productivity in food production
	9 Government	Lowering the cost of starting a new business
Fair	10 Migration	Lowering barriers to migration for skilled workers
	11 Malnutrition	Improving infant and child nutrition
	12 Malnutrition	Reducing the prevalence of low birth weight
	13 Diseases	Scaled-up basic health services
Bad	14 Migration	Guest worker programmes for the unskilled
	15 Climate	Optimal carbon tax
	16 Climate	The Kyoto Protocol
	17 Climate	Value-at-risk carbon tax

SUMMARY: BENEFIT-COST RATIOS





EFFICIENCY: COST-EFFECTIVENESS ANALYSIS

- Cost per unit of health effect
- Narrow versus wide applications:
 - Cost per malaria case effectively treated through alternative drug combinations (narrow)
 - Cost per Disability Adjusted Life Year (wide)

DISEASE CONTROL PRIORITIES PROJECT COST-EFFECTIVENESS OF INTERVENTIONS

(Laminarayan et al 2006)

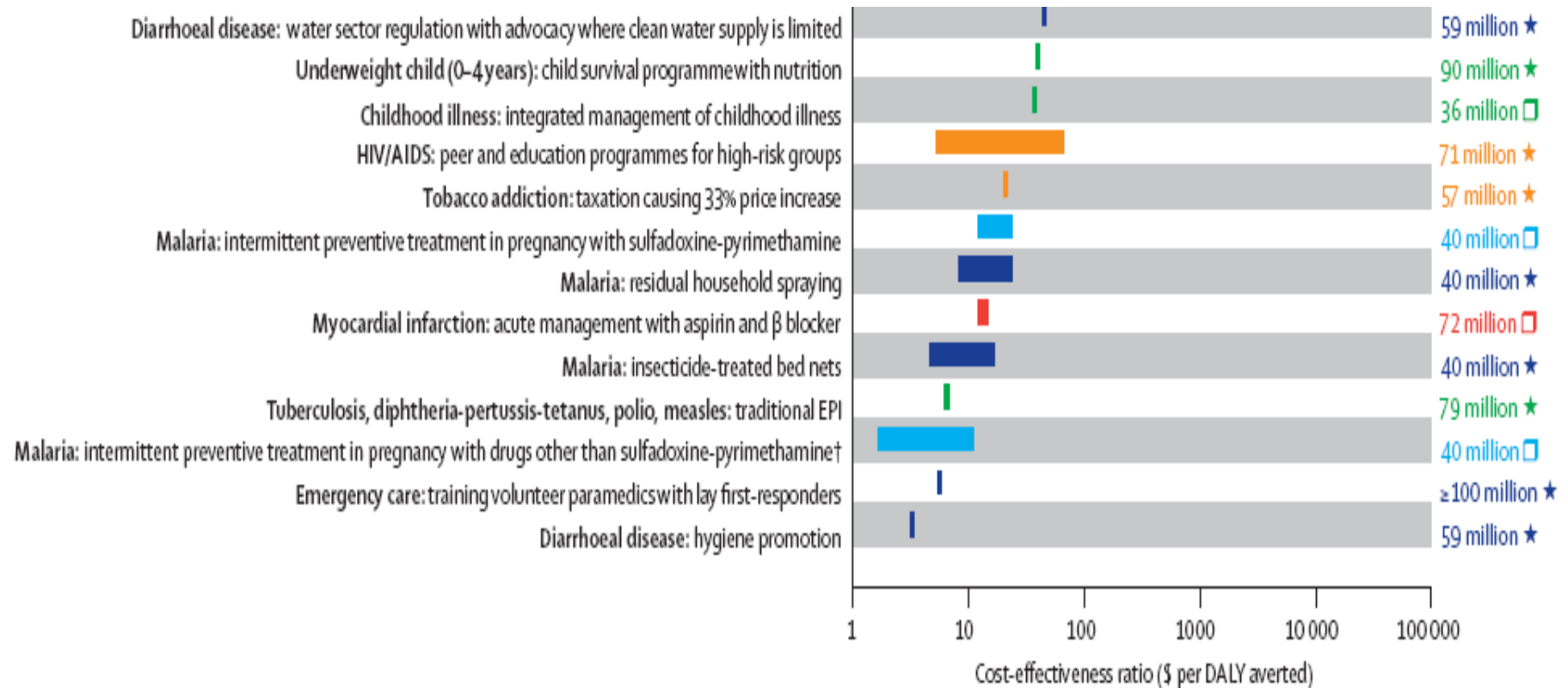
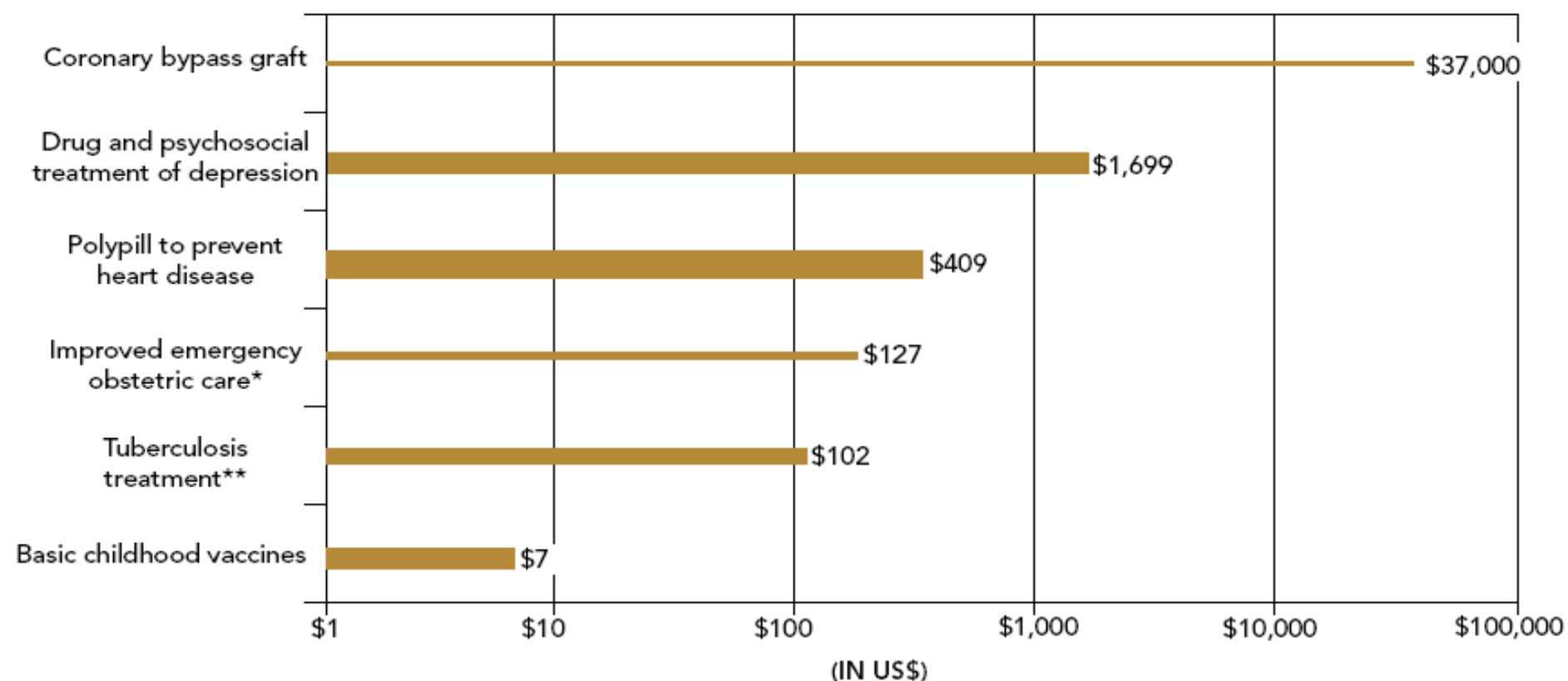


Figure 1: Cost-effectiveness of interventions related to high-burden diseases in low-income and middle-income countries (>35 million DALYs)

Bars=range in point estimates of cost-effectiveness ratios for specific interventions included in each intervention cluster and do not represent variation across regions or statistical confidence intervals. Point estimates obtained from DCP2, calculated as midpoint of range estimates reported, or calculated from a population-weighted average of region-specific estimates reported. Only interventions with cost-effectiveness reported in terms of DALYs are included in figure. *Advertising bans, smoking restrictions, supply reduction, and information dissemination. †Chloroquine=first line drug; artemisinin-based combination therapy=second-line drug; and sulfadoxine-pyrimethamine=first-line or second-line drug.

FIGURE 2: COST PER DALY GAINED FOR SELECTED HEALTH INTERVENTIONS



*Refers to South Asia only; includes measures to address life-threatening pregnancy complications

**Directly observed treatment short-course (DOTS) for epidemic infectious tuberculosis

Notes: The cost per DALY represents an average for low- and middle-income countries, except where noted. The width of the bars represents the relative burden of disease that could be averted by the intervention (or package of interventions) shown if applied to everyone who needs it.

The horizontal scale is logarithmic and thus the length of the bars is not proportional to the dollar values.

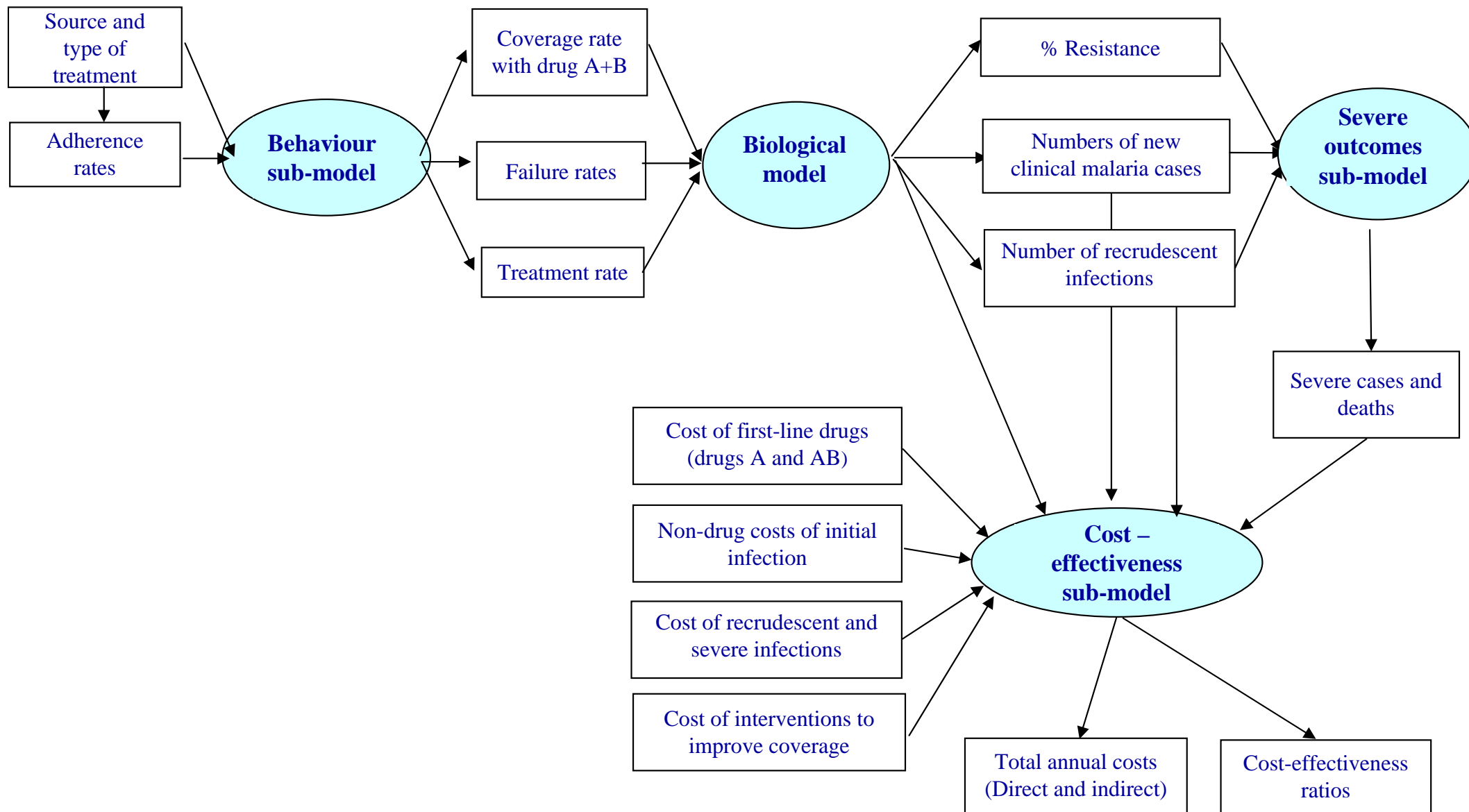
Source: Calculations based on Chapters 2, 16, 26, and 33. 2006. *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D.T. Jamison, et al.

COST-EFFECTIVENESS OF DELIVERY APPROACHES



- Hanson et al: cost-effectiveness of social marketing approach to distributing insecticide treated mosquito nets for malaria control was \$57 per DALY
- Comparable cost-effectiveness to other ways of distributing ITNs

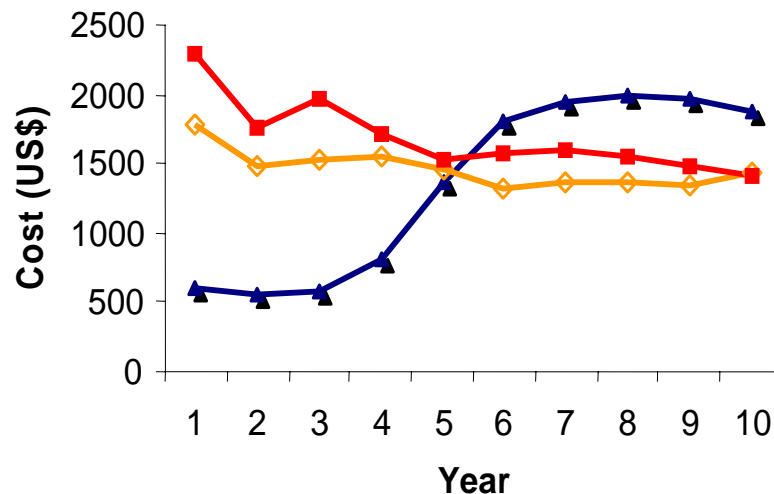
A BIO-ECONOMIC MODEL OF THE SPREAD OF ANTIMALARIAL DRUG RESISTANCE (Yeung 2006)



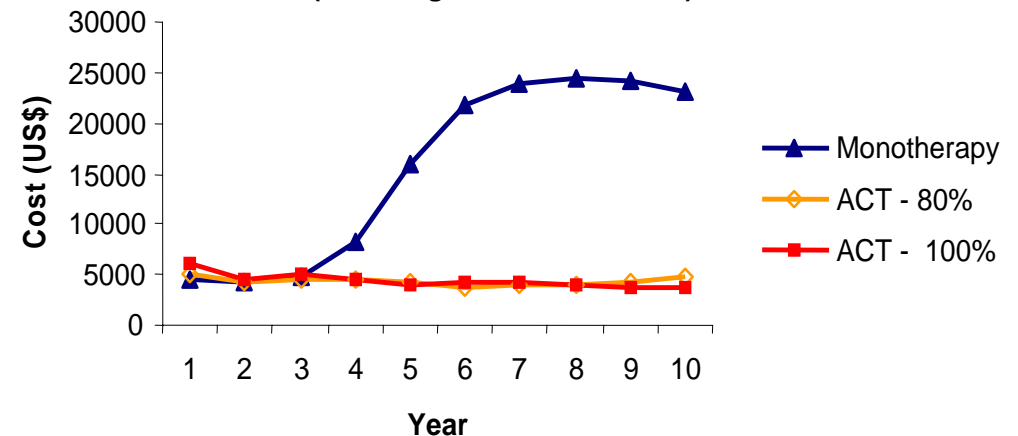
EXAMPLES OF MODEL OUTPUT (SOUTH EAST ASIAN SETTING)



a) Annual first line drug costs



b) Annual direct costs of malaria
(including treatment failures)



Shows costs over time, comparing monotherapy (drug A) with artemisinin combination therapy (drug A plus Artesunate - ACT) at 2 coverage levels and assuming initial 1% resistance to drug A



EQUITY

- of paying for health care
- of expenditure on health care
- of access to care
- of use of care
- of health outcomes

TREATMENT FOR FEVER IN RURALTANZANIA (Njau et al 2006)

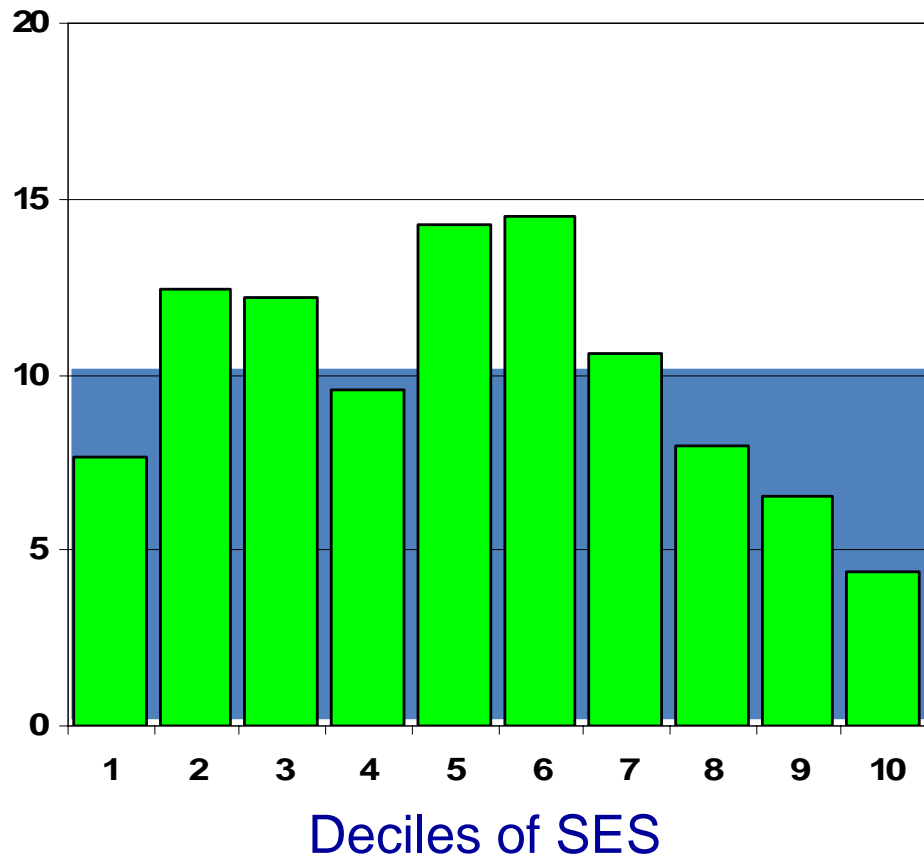


	SES Thirds			Total % (P-value)
	Poorest (%)	Middle (%)	Better- off (%)	
<i>Pf</i> parasitaemia on day of interview	25	26	18	23 (0.0001)
Obtained adequate dose of antimalarial	8	6	19	11 (0.0001)

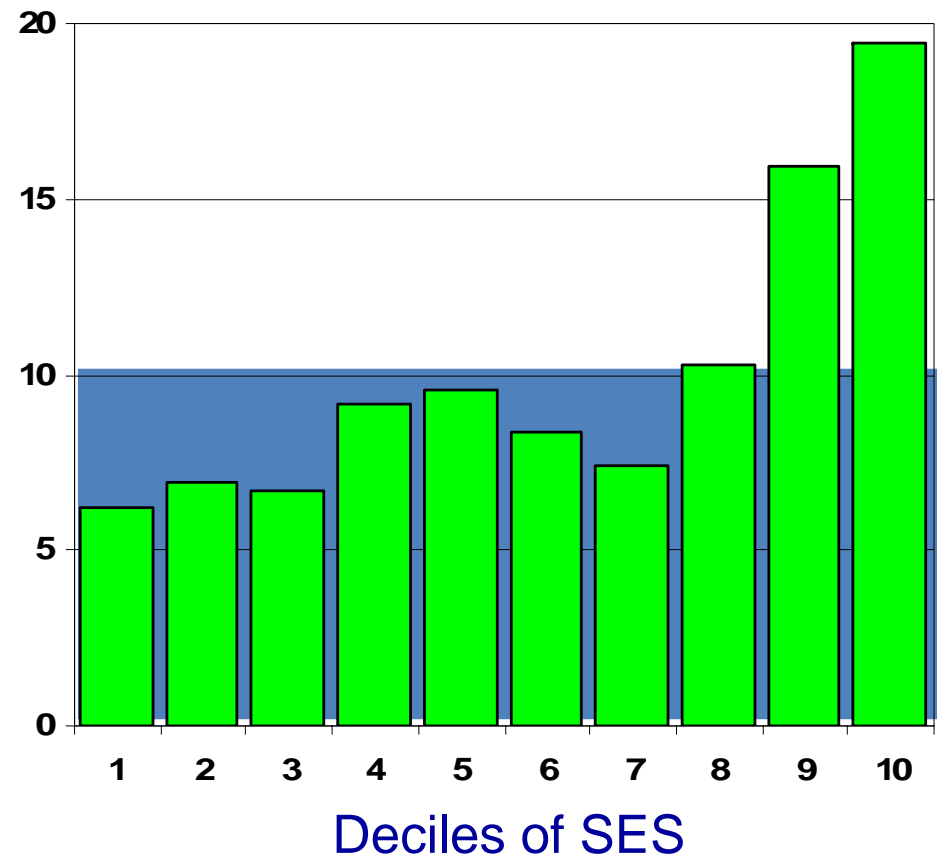
PERCENTILE SES DISTRIBUTION OF RURAL MEMBERS AND CLAIMANTS, 2003 (Ranson et al 2006)



Members



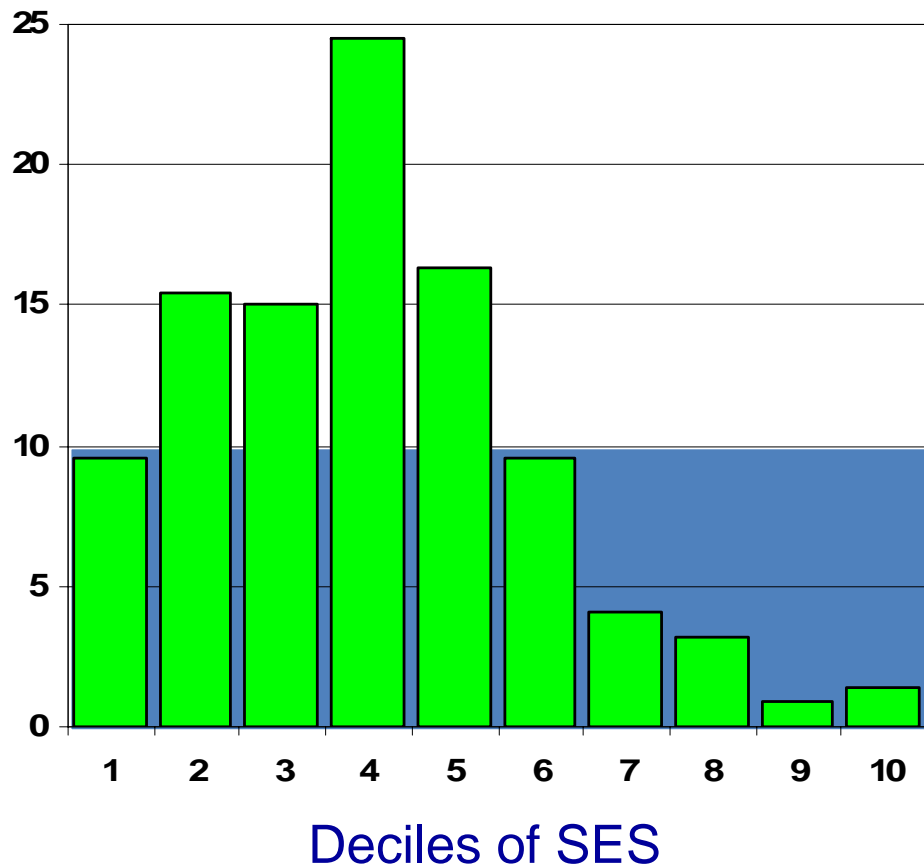
Claimants



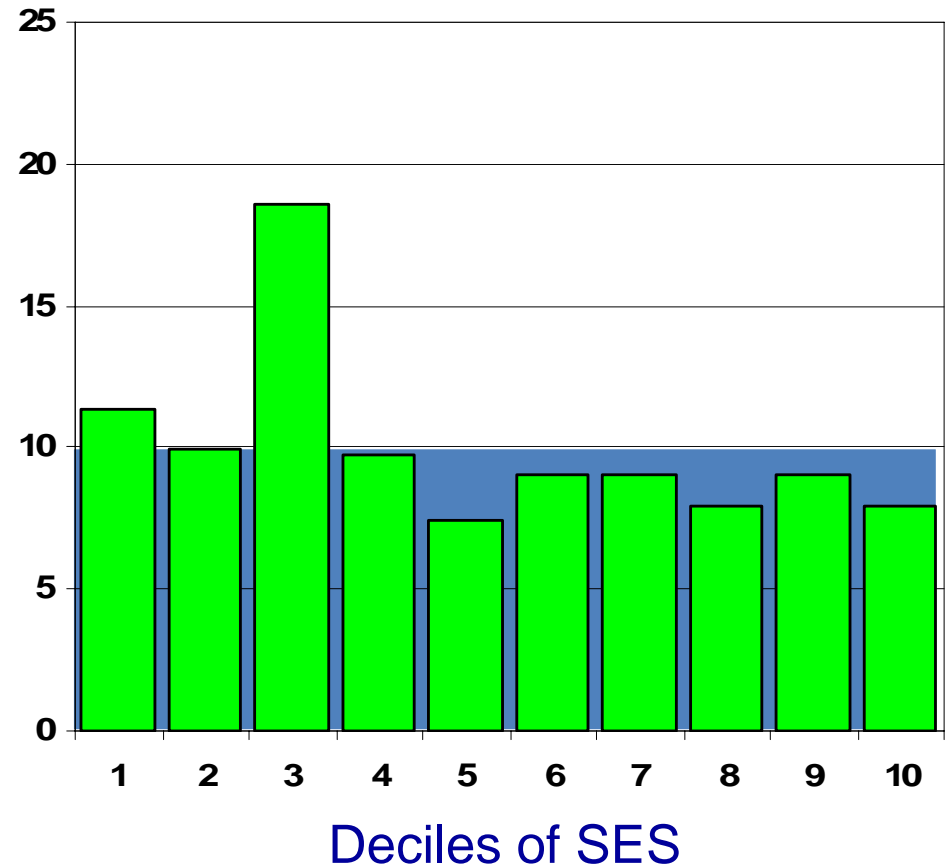
PERCENTILE SES DISTRIBUTION OF URBAN MEMBERS AND CLAIMANTS, 2003 (Ranson et al 2006)



Members



Claimants



TIME EFFECT AND INTERVENTION EFFECT (Ranson et al 2007)



Indicators	Change in all groups (2003 - 2005)	Any intervention effect?
Members per 1,000 population	-13.8 -31.8 - +4.2	No <i>p-value = 0.899</i>
SES of members (relative to population)	+6.9*** +3.0 - +10.8	No <i>p-value = 0.915</i>
Claims submission per 1,000 members (9 mos)	+21.6*** +15.4 - +27.8	No <i>p-value = 0.236</i>
SES of claimants (relative to members)	-4.1 -10.1 - +1.9	No <i>p-value = 0.810</i>

Significance level:

***** P<0.001**

Impacts expressed as absolute changes. Point estimates, 95% CI, and P-values derived from mixed effects regression models relating each outcome to intervention group, time, and interaction of the two, accounting for clustering within intervention areas and sub-districts.

SEARCH RESULTS: SYSTEMATIC REVIEW OF EVIDENCE ON EFFECTIVENESS OF WORKING WITH PRIVATE PROVIDERS TO IMPROVE EQUITY IN HEALTH (Patouillard et al 2007)



Intervention	No. of references retrieved	No. of evaluated interventions	No. of interventions evaluated providing:		
			general socio-economic status (SES) information	average effectiveness for poor/disadvantaged populations	relative effectiveness across SES groups
Social marketing	472	14	12	1	2
Franchising	906	5	4	1	3
Training	599	29	19	1	0
Regulation	276	2	0	1	0
Accreditation	150	1	1	0	0
Contracting Out	80	3	3	2	0

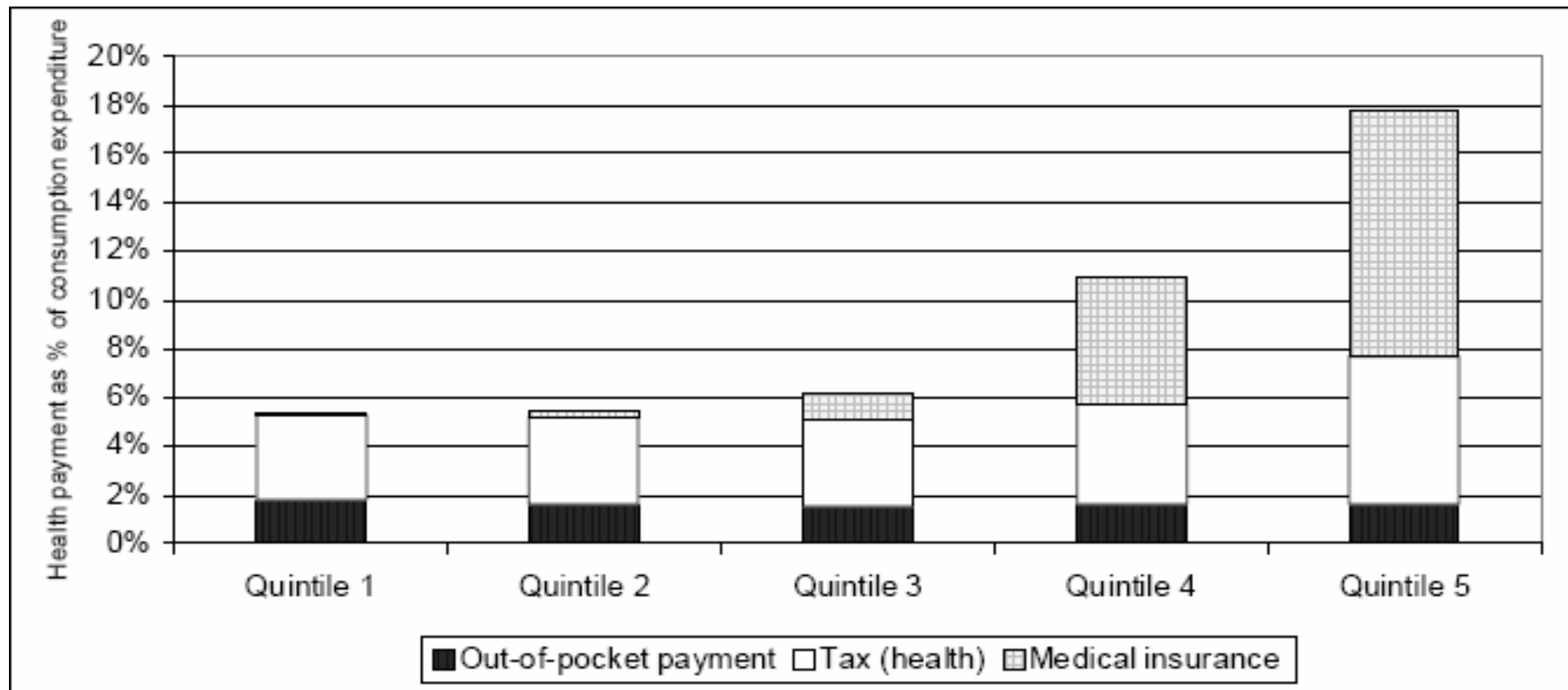
ANALYSIS OF EQUITY AT SYSTEMS LEVEL



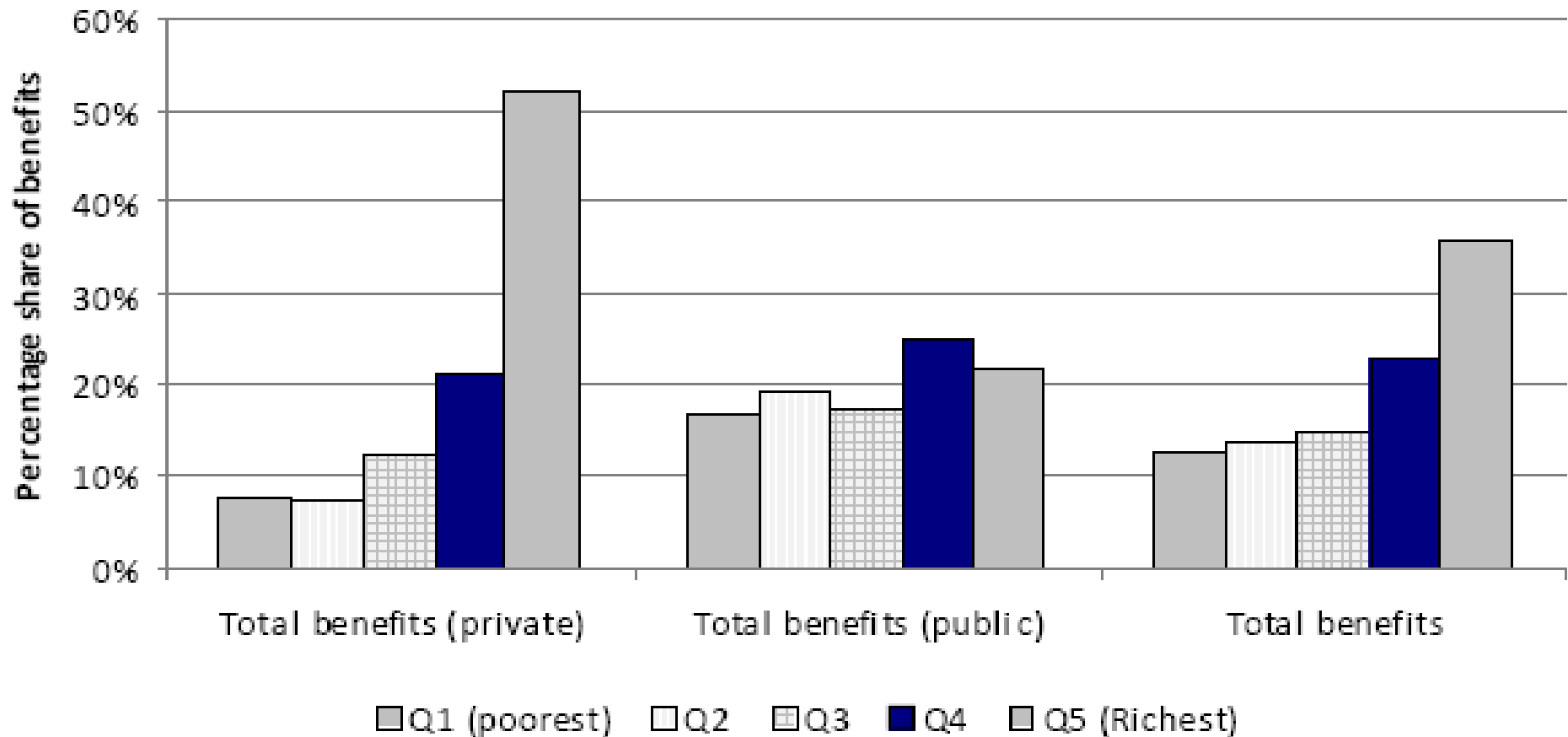
- Financing incidence – who pays for health care by income group
- Benefit incidence – who benefits from health care by income group (benefits = use x cost of care)
- Categorisation by neutral, regressive, progressive



DISTRIBUTION OF TOTAL FINANCING INCIDENCE IN SOUTH AFRICA



DISTRIBUTION OF TOTAL HEALTH CARE BENEFITS IN SOUTH AFRICA



ECONOMICS CAN HELP BY...



- Advocating effectively for protection/increase of health budgets
- Assessing how to improve efficiency of current spending
- Identifying whether health spending and services are reaching for poorer groups



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